Executive Office of Environmental Affairs

HOUSATONIC RIVER

5-Year Watershed Action Plan
2002-2007

EXECUTIVE OFFICE of
ENVIRONMENTAL AFFAIRS

The Commonwealth of Massachusetts

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June 30, 2003

Dear Friends of the Housatonic River Watershed:

It is with great pleasure that I present you with the 5-Year Watershed Action Plan for the Housatonic River Watershed. The plan will be used to guide local and state environmental efforts within the Housatonic River Watershed over the next five years, as well as implement the goals of the Executive Office of Environmental Affairs. These goals include improving water quality; restoring natural flows to rivers; protecting and restoring biodiversity and habitats; improving public access and balanced resource use; improving local capacity; and promoting a shared responsibility for watershed protection and management.

The Housatonic River Watershed Action Plan was developed with input from state and federal agencies, Regional Planning Agencies, watershed groups, former watershed team members, and with extensive public involvement throughout the reaches of the watershed. This unique approach helps us focus on the problems and challenges that are identified with stakeholders and community partners in each watershed, rather than being decided solely at the state level. The priority issues and action strategies identified in the plan include:

- Ensure the Remediation and Restoration of the Housatonic River
- Work to Improve Water Quality and to Mitigate Accelerated Eutrophication of Lakes and Ponds
- Enhance Environmental Education and Natural Resources Stewardship
- Support Environmentally Sustainable Growth
- Protect and Increase Biodiversity Conservation

I commend everyone that was involved in this endeavor. Thank you for your dedication, perseverance, and commitment. If you are not currently a participant, I strongly encourage you to become active in the Housatonic River Watershed restoration and protection efforts.

Regards,

Ellen Roy Herzfelder

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APPENDICES

Any reference to 'Massachusetts Watershed Initiative (MWI)' in this document pertains to a program that existed at the Executive Office of Environmental Affairs from 1993-2003. Any reference to a 'Watershed Team' refers to a multi-stakeholder team, facilitated by a 'Watershed Team Leader' that existed from 1998-2003 as part of the MWI.

Chapter 1 - Introduction

This document is the 5-Year Action Plan (5YAP) of the Housatonic Watershed. It is not an exhaustive, detailed analysis of the state of the watersheds, nor of all the activities and actions ongoing or planned. It is a document that describes the most critical and highest priority actions.

The primary goals are:

- Healthy Ecosystems and Biological Diversity
- Clean and Plentiful Water for People and Wildlife
- Protected Open Space
- Improved Public Access and Balanced Resource Use
- Shared Responsibility for Watershed Protection and Management

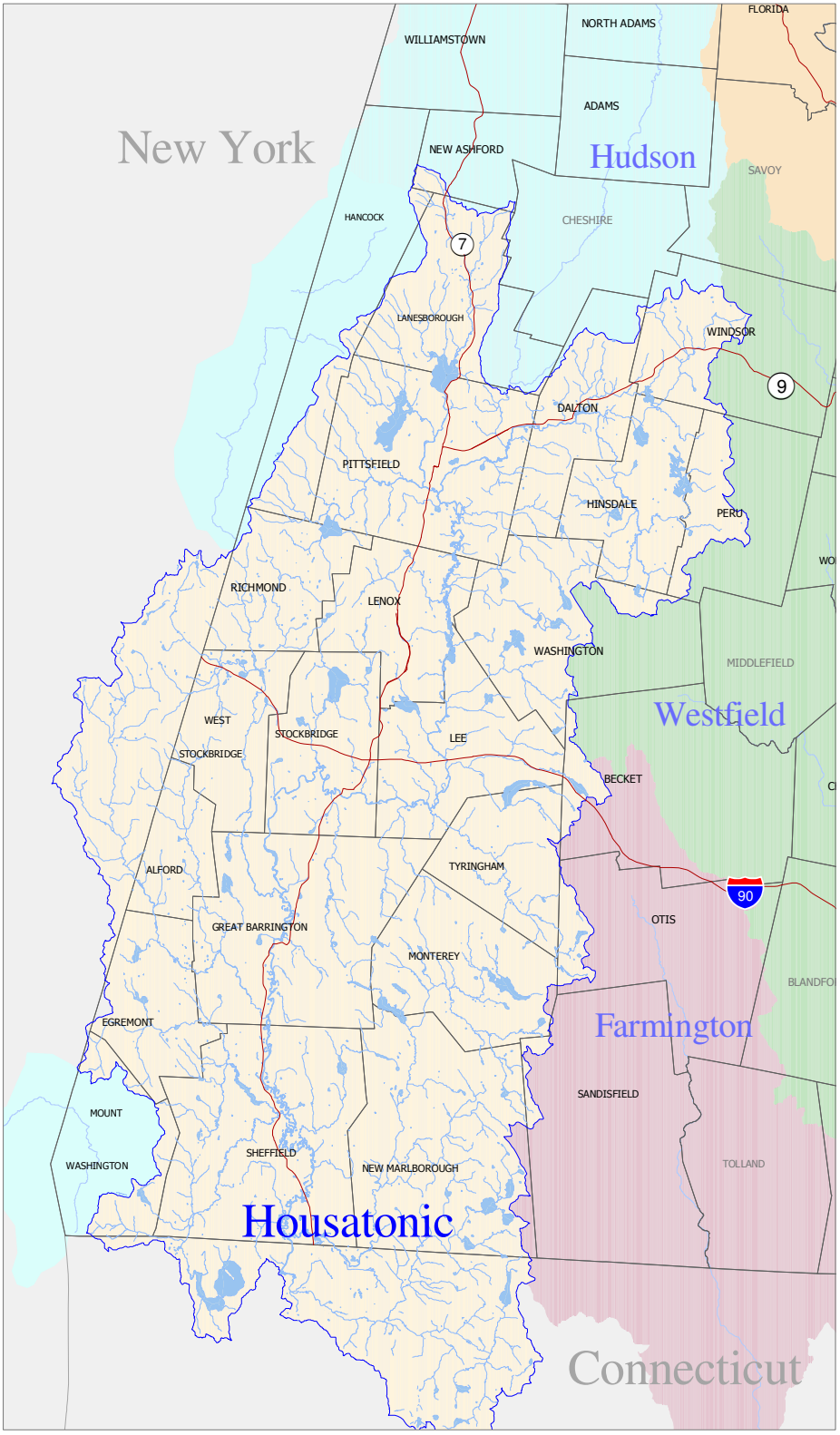
These broad goals are incorporated into watershed-specific goals and priorities, which are outlined and described in Chapter 2. The goals and objectives contained in this document are the product of several detailed plans and assessments, and are based on the best available scientific data. In order to continually prioritize these goals, cultural, economic, and political factors associated with the specific issue or location must be factored, and energy devoted to those that have the highest chances of successful resolution. As such, this plan should be considered a working document that is frequently updated and augmented as time and circumstances necessitate.

The Housatonic Watershed

The Housatonic River Watershed is located in southwestern Massachusetts and is bordered by the watersheds of the Hudson River to the north, the Westfield River to the northeast, and the Farmington River to the southeast. The Housatonic River begins at the confluence of the West and Southwest Branches of the Housatonic River in Pittsfield. From this point, the river flows south for 150 miles until it empties into Long Island South in Connecticut. Other major tributaries of the Housatonic in Massachusetts are the Williams, Green, and Konkapot Rivers, and Hubbard Brook.

The Housatonic River Watershed exhibits variable hydrology with swift streams, a meandering river, productive aquifers, extensive wetlands and 119 lakes and ponds. The watershed has four distinct seasons with more than half of its 45 inches of rainfall occurring in the warmest 6 months of the year. The calcareous substrate and variability of terrain and climate gives rise to a prolific biological community with 117 rare plant and 33 rare animal species as well as the occurrence of 18 significant natural communities.

Eighteen towns and one city in Berkshire County lie wholly or at least one-third in the Housatonic River Watershed. These municipalities, Alford, Dalton, Egremont, Great Barrington, Hinsdale, Lanesborough, Lee, Lenox, Monterey, New Marlborough, Peru, Pittsfield, Richmond, Sheffield, Stockbridge, Tyringham, Washington, West Stockbridge and Windsor had a total


New York
Hudson
Westfield
Farmington
Housatonic
Connecticut
WILLIAMSTOWN
NORTH ADAMS
FLORIDA
ADAMS
NEW ASHFORD
SAVOY
HANCOCK
CHESHIRE
7
LANESBOROUGH
WINDSOR
9
DALTON
PITTSFIELD
HINSDALE
PERU
RICHMOND
LENOX
WASHINGTON
MIDDLEFIELD
WEST
STOCKBRIDGE
STOCKBRIDGE
LEE
BECKET
ALFORD
TYRINGHAM
90
OTIS
GREAT BARRINGTON
MONTEREY
EGREMONT
SANDISFIELD
MOUNT
WASHINGTON
SHEFFIELD
NEW MARLBOROUGH
TOLLAND

population in 1990 of 94,144. Over half (48,622) reside in the City of Pittsfield. US Census estimates predict that the population of the Housatonic River Watershed towns will increase overall, but with a marked loss in the City of Pittsfield. The distribution of that population has and will continue to change from being concentrated in urban centers to dispersal across the smaller towns in the county.

Human uses of the riparian areas in the Housatonic River Watershed include industrial, agricultural, recreational and wildlife management. Historically, industrial uses along the Main Stem of the river contributed to excessive levels of pollutants, levels that were reduced dramatically post-1970's. Perhaps the greatest impacts to the Housatonic River and its watershed were the intensive industrial uses by technology manufacturers, and the numerous paper mills. These industrial users dammed the river, affecting its hydrologic regime, and disposed of industrial waste in the river, affecting the river's health. Also, these industries were the major employers of the region and drove the settlement patterns along the main stem of the river.

In the past few decades, the major manufacturing sector of the local economy declined considerably, eliminating jobs and stimulating emigration from the area. Currently, the employment scenario in the region is diverse with service professions and retail providing more than 50% of the jobs in all of Berkshire County (1990 Census).

The entire drainage basin of the Housatonic lies in Berkshire County, and is categorized by two distinct land uses. The upper third of the River Basin is urbanized, with Pittsfield serving as the core city. The remaining two-thirds of the River Basin are rural in character and possess large amounts of forested land. The traditional economic base of the region, the tourism and paper manufacturing industries, has utilized the environmental quality of the area.

The Hudson River Watershed and the Housatonic River Watershed face similar issues and both fall within the boundaries of Berkshire County. Both watersheds (as well as parts of the Farmington, Westfield, and Deerfield River Watersheds) share the services of a regional planning agency, the Berkshire Regional Planning Commission (BRPC), along with the traditional management services and responsibilities of the other government agencies.

Recent Accomplishments in the Watershed

The former Watershed Team played a significant role in the past few years in increasing communication and coordination between former Team members and partners. Through the former Team's communication channels, the skills and efforts of different partners resulted in greater collective accomplishments that benefited the entire watershed.

During the Assessment and Implementation phases, the greatest accomplishments in the watershed were threefold:

The environmental advocacy groups (most notably the Housatonic River Initiative) have remained diligent in their support of the government agencies' continued negotiations of the

settlement Agreement in Principle (10/98) with General Electric (GE). That process culminated in the signing of the Consent Decree (CD).

Housatonic River Restoration, Inc. completed the development of a river restoration plan. That collaborative and exhaustive process included all conservation interests in the watershed (both public and private) and utilized over 30 public forums to bring the restoration plan to fruition.

The state and federal environmental agencies, City of Pittsfield, and GE achieved a negotiated settlement and CD. That CD lays out a definitive plan for the remediation and restoration of the Housatonic River, for the first two miles below GE; and a scheduled decision (2002) on the Rest of River (the Main Stem, below Pittsfield).

The Housatonic Watershed has a broad array of watershed and conservation-related projects underway. In the list compiled below, the entity in parenthesis was the lead on that respective project. Some of the general accomplishments that relate directly to EOEA include:

- The completion of a Nonpoint Source Pollution Assessment (BRPC)
- The completion of a Water Quality Assessment (DEP)
- The completion of a Stormwater Assessment and Mitigation Project at five lakes and ponds (BRPC)
- Review and comments on all MEPA projects through the BRPC Clearinghouse Review Committee (BRPC)
- Four stream team shoreline surveys and segment reports (HVA)
- The formation of the lakes and ponds network (LAPA West)
- The implementation of the HVA Community Watershed Initiative (HVA, BRPC)
- Oversight (through the former Watershed Team Leader) of the restoration of habitat following the initial PCB source control, remediation, and restoration of the 1/2 mile section of the Housatonic River. "Substantial" completion of this section of the project is scheduled for May of 2002
- In February of 2002, the NRD Trustees completed the Memorandum of Agreement (MOA) that forms the Trustee Council; presented that MOA in a public watershed forum and obtained Trustee signatures making that the MOA official
- In 2001 the HRI was appointed a "River Keeper" by the National Water Keepers Alliance, a national water stewardship and advocacy organization
- Two watershed forums conducted by the previous Watershed Team leader pursuant to nonpoint source assessment project (1997,1998-Watershed Team)

<u>Summary of HRR Restoration Planning Activities and Reports</u>

The accomplishments listed below are those of Housatonic River Restoration, Inc. (HRR) through its member organization collaborative. They are included in this Watershed Action Plan because of the extensive integration that occurred between HRR and the former Housatonic Watershed Team.

Note: Although HRR is principally focused on restoration of the Housatonic River, it has essentially functioned as a kind of Watershed Community Council, complete with a governing council that includes municipalities, albeit those situated along the mainstem of the Housatonic River.

October, 1997 – October, 1999: 60+ Public Meetings
Held more than sixty public and invitational meetings with local Berkshire citizens to gather input for a Housatonic River Restoration Plan. More than 1200 participants attended. Sponsored by Housatonic River Initiative.

February, 1999: Lakewood River Walk
Organized and facilitated a public meeting to gather public input into the design of a half-mile River Walk in the Lakewood section of Pittsfield. Hosted by Citizens for PCB Removal. In preparation for the conceptual trail plan prepared for the Natural Resource Restoration planning process.

February, 1999: Removal Action Workplan Review
Convened local specialists to gather comment for the NRD Trustees on the Removal Action Work Plan –Upper 1/2 Mile Reach of the Housatonic River, prepared by BBL for General Electric Co., January, 1999.

October, 1999: Student Conference
Co-produced Having Our Say – Shaping Our River's Future; A Student Teach-in for the Housatonic River with Conte Community School, Pittsfield. Four hundred and fifty students (Grade 3 through college) and eighty adults participated to discuss the Housatonic River and describe their visions for the future. Nineteen schools attended throughout the river's upper watershed, including classes from Massachusetts, Connecticut, and New York.

October, 1999: Education Resource Guide
Produced a Housatonic River Education Resource Guide on programs produced locally by schools and environmental organizations

December, 1999: HRR River Restoration Plan
Published The Housatonic River Restoration Plan by the People of Berkshire County, including Narrative, Goals, and Recommendations for: Administration; Water Quality; Education; Physical Access; River Trails, Bikeways and Other Amenities; Ecological Restoration; Land Acquisition; Economic Development; Historical and Cultural Amenities; Community-based Stewardship; and Watershed and River Management.
Funded by the US Environmental Protection Agency and Massachusetts Environmental Trust.

February, 2000: Housatonic River Basin Map
Produced a detailed map of the Massachusetts portion of the Housatonic River Basin, incorporating MassGIS watershed mapping capabilities, to raise awareness about the role of the river's watershed in the Berkshires. Co-produced with Berkshire Natural Resources Council.

January, 2000 – August, 2001: Technical Assessment Reviews
Produced Assessment reviews of projects proposed in The Housatonic River Restoration Plan for the Massachusetts portion of the Housatonic River Watershed. Individual reports include: Non-PCB Water Quality Issues; Environmental Education Initiatives; Canoe Access Sites; Navigability Issues; River Trails, Bikeways, and Other Amenities; Ecological Restoration Issues; Community Cleanups; HVA Stream Teams; and Dams. Funded by the Massachusetts EOEA Watershed Initiative's Communities Connected by Water program.

September, 2000: Incorporated Housatonic River Restoration, Inc. (HRR)
Incorporated as a collaborative 501(c)3 community-based organization to represent the diverse interests of Berkshire County in the development and implementation of the Natural Resource Damage Restoration Plan, made possible through the recent PCB settlement agreement with GE. Established a Governing Council consisting of town-appointed representatives from all of the Massachusetts communities along the main stem of the river, several at-large positions representing different constituencies and representatives from a dozen major environmental and recreational organizations.

September, 2000: Environmental Education Network
With EOEA and the Hoosic River Watershed Association, HRR convened three forums for schoolteachers and environmental education providers to assess local needs and opportunities for environmental education. As a result, the Berkshire Environmental Education Network was formed to help teachers integrate environmental education into their school curricula, emphasizing local, place-based opportunities for learning. The function of the network is to: develop curricula, locate resources, provide or create training opportunities, seek out funding opportunities, and assist in grant writing.

July, 2001: Teacher-training workshop: Biodiversity in the Housatonic River Basin
Coordinated a 3-day teacher training with Collaborative Opportunities for Learning and Teaching (C.O.L.T), in which eight environmental organizations trained teachers on how to use the Housatonic River as a teaching laboratory. The training covered native versus invasive plant species, natural history, storm drain awareness, PCB health effects, river safety, and how to measure water quality through macro-invertebrates. Twelve teachers of grades 3-8 and 12 student partners from Berkshire County and Connecticut participated in classroom and outdoor activities on the land and on the river.

July, 2000 – July, 2001: Funded Restoration Initiatives
HRR sought proposals from river organizations, environmental groups, municipalities, and other organizations to fund pilot demonstration projects in the HRR Restoration Plan. The HRR Governing Council selected the best proposals and HRR administered the grant process. Funded initiatives included:
Storm drain awareness program (Housatonic Valley Association); K-12 River Protection Curriculum (Conte Community School); Sacred Way Trail Project (Berkshire Sanctuaries, Massachusetts Audubon); and Environmental Education Center, Bartholomew's Cobble (The Trustees of Reservations). Funded by the Massachusetts EOEA Watershed Initiative's Communities Connected by Water program.

Since June, 2001: Canoe Access Sites
HRR is working with the MA Division of Fisheries and Wildlife Public Access Board to implement canoe access facilities at 3-4 locations identified in the HRR Restoration Plan.

Since August, 2001: Funded Environmental Education Initiatives
HRR sought proposals from river organizations, environmental groups, municipalities, and other organizations to fund pilot environmental education projects within the scope of the HRR Restoration Plan.
Funded initiatives include: Project Native educational initiatives (Railroad Street Youth Project); Antioch environmental education staff training (Southern Berkshire Regional School District); Watershed and wetlands trail education (Flying Cloud Institute); Storm drain awareness brochure (Housatonic Valley Association); and Mercury awareness education in schools (Center for Ecological Technology). Funded by the Massachusetts Environmental Trust.

Ongoing: Housatonic River Restoration Website, Database, and Advocacy
HRR maintains an HRR web site (www.restorehousatonic.com), featuring: The Housatonic River Restoration Plan; Environmental Education Network: HRR Education Action Plan; Educational Resources and HRR Course Offerings; and HRR Grant Opportunities. HRR maintains a database of 4000 stakeholders in the Housatonic River watershed, tracking their participation in HRR activities.

HRR advocates for the Housatonic River Restoration Plan to the Natural Resource Damage Trustees and to other sources of funding, on behalf of the citizens of Berkshire County. Executive Director Rachel Fletcher was named as one of two ex-officio Trustees to the Natural Resource Damage Trustee Subcouncil (Massachusetts).

Chapter 2 – Action Plan

The 5-Year Action Planning Process

EOEA utilizes a 5-Year planning cycle. The planning activities and their corresponding calendar years are as follows:

Year 1- Outreach
Year 2- Data Collection (Research and Monitoring)
Year 3- Data Assessment
Year 4- Action Plan Development
Year 5- Plan Implementation and Evaluation

The 5-Year planning cycle is modeled after the Massachusetts Department of Environmental Protection's water quality analysis (WQA) and 305B reporting requirements to the Environmental Protection Agency (EPA). However, this 5-Year Watershed Action Plan (WAP) represents a broader approach to watershed management in an effort to address all the programmatic themes. As part of the 5-year cycle, this WAP is the product of an extensive planning process and the start of an ambitious implementation phase. The process utilized by the former team incorporated as much input as possible from the various members of the watershed team and from stakeholders throughout the watershed.

Background assessment information was drawn from the former Watershed Team's 2000, 2001, 2002, and 2003 Annual Work Plans, the Berkshire Regional Planning Commission's *Stormwater Assessment in the Hoosic and Housatonic Watershed (2000)* and *The Regional Plan for the Berkshires (1999),* the Department of Environmental Protection's *Nonpoint Source Management Plan (2001), and the Assessment of Land Use Activities and Nonpoint Source Pollution in the Hoosic River Watershed (1998)* prepared by the Berkshire Regional Planning Commission and the Berkshire Conservation District.

Chapter 3 - Goals and Objectives

As previously stated, the Watershed Action Plan was developed using the goals of EOEA for watersheds as a framework within which to develop the former team's goals and objectives. The goals are:

- Healthy Ecosystems and Biological Diversity
- Clean and Plentiful Water for People and Wildlife
- Protected Open Space
- Improve Public Access and Balanced Resource Use
- Shared Responsibility for Watershed Protection and Management

The former Housatonic Watershed Team further refined these goals to more specifically address the needs of this watershed. This chapter describes these goals and objectives in greater detail. The Housatonic Watershed goals for the 5-Year Watershed Action Plan are:

1. Ensure the Remediation and Restoration of the Housatonic River
2. Work to Improve Water Quality and to Mitigate Accelerated Eutrophication of Lakes and Ponds
3. Enhance Environmental Education and Natural Resources Stewardship
4. Support Environmentally Sustainable Growth
5. Protect and Increase Biodiversity Conservation

Goal #1 Ensure the Remediation and Restoration of the Housatonic River

Objective 1.1 Participate in the implementation of the GE/Agencies CD, for the remediation and restoration of the Housatonic River and its environs from Polychlorinated Biphenyls (PCBs) contamination.

Objective 1.2 Pursuant to 1.1 participate in the Citizens Coordinating Council (CCC) community involvement process.

Objective 1.3 Participate in the Natural Resources Damage (NRD) Trustee Council restoration planning and implementation process.

The Main Stem of the Housatonic River is plagued with water quality problems due to the current and historical industrial practices along the river. The presence of priority organics, specifically Polychlorinated Biphenyls (PCB's), is the leading cause of the river not supporting its classified uses. From the 1920's to the mid-1970's GE used polychlorinated biphenyls as a required component of electric transformer manufacturing. During this time millions of gallons of waste oils containing PCB's were discharged directly into the East Branch of the Housatonic River. However, in 1977 the US EPA determined the PCB's were a probable human carcinogen and banned their use. Manufacturing practices until then had allowed millions of gallons of PCB's to both spill and be discharged directly to the river. PCB's though, do not degrade in the

environment and have turned into a persistent source of NPS pollution as "hot spots" of PCB contamination are scoured during storm events and PCB contaminated sediments are redistributed throughout the river system including its floodplains. In addition to the river system contamination, PCB levels in many schools, residential, and commercial properties are high due to the practice of using contaminated fuller's earth to fill low and wet sections of land. Fuller's earth was a material used for absorbing factory oil spills. The company gave this contaminated material away rather than send it to a landfill.

Contamination levels of PCB's reach 55,000 parts per million (ppm) in the river and more than 100,000 ppm on the banks close to the GE site. The US EPA set a maximum safe limit for PCB's (post-cleanup) at 10-15 ppm in river sediments and banks and 2 ppm in residential and school properties. Remediation levels at the GE plant site are greater. Remediation efforts are carried out under a Resource Conservation and Recovery Act permit.

On September 24 1998, the EPA, DEP, and GE reached an agreement in principle regarding clean-up of the PCB's in the first 2 miles of the East Branch of the Housatonic River as it leaves the GE Industrial Site in Pittsfield. The agreement includes remediation at the GE Plant site as well. As part of that accord, GE agreed to $21 million in Natural Resource Damages to be provided in a combination of cash, restoration projects, and tax revenues from economic development projects in the City of Pittsfield. These damages were evaluated by state and federal agencies to include ecological and human use service losses. Ecological service losses refer to the damage done to the natural environment due to the presence of excessive levels of PCB's. Human use service losses include damage to recreational fishing and boating since PCB's pose a serious health threat to humans. Cleanup of the contaminated river and floodplain sediments, and assessment of resource damages are overseen by state and federal agencies and are described in numerous reports created by this agency, the EPA, and GE. The former Watershed Team Leader oversaw much of these efforts, and served as the conduit for communication between several agencies. The former Watershed Team Leader (WTL) continues to serve the Natural Resources Damage (NRD) Trustees as Interim Restoration Coordinator, pending the eventual hiring of a full-time Restoration Coordinator. In addition to conducting oversight of the restoration work, the former WTL also facilitated public participation in the Trustees restoration planning process. In 2001, the Trustees completed a draft of the Memorandum of Agreement (MOA) that forms the Trustee Council, presented that MOA in a public watershed forum, and is presently reviewing public comments before issuing the final MOA for participant agency signatures.

Objective 1.4 Support the further development and implementation of the Housatonic River Restoration Plan

In 1997, the Housatonic River Initiative, a citizen's group advocating for the removal of PCB's from the Housatonic River, began an extensive grassroots planning process. Guided by a steering committee of twenty-three members, the Housatonic River Restoration Plan assembled a comprehensive document that incorporates the input of over one thousand local citizens, and is intended to articulate the concerns, issues, and goals of the people of Berkshire County regarding

the future of the Housatonic River. The plan includes topics ranging from water quality and recreational opportunities to education and economic development, and contains extensive recommendations for each goal.

Goal #2 Work to Improve Water Quality and to Mitigate Accelerated Eutrophication of Lakes and Ponds

The Housatonic River Watershed lakes and ponds share a common problem of advancing eutrophication. The most common side effect of increasing nutrient levels in these lakes is excessive weed growth, especially Milfoils (g. *Myriophvllum*) and Pondweeds (*g. Potamogeton).* Diagnostic and Feasibility Studies, funded by the DEP's Clean Lakes Program, highlight potential sources of pollution and recommend management and remediation techniques for eutrophic lakes. Results of these studies indicate that phosphorous is the limiting nutrient for plant growth in freshwater, therefore management techniques often focus on reductions of phosphorous inputs into lakes with excessive weed growth. Most phosphorous enters lakes in the Housatonic River Watershed via tributary streams, and through internal recycling of phosphorous once adsorbed to sediments. Concerns for phosphorous management include septic system input and stormwater runoff from residential land uses. The Clean Lakes program funded studies on Lake Buel, Onota Lake, Richmond Pond, Stockbridge Bowl, Prospect Lake, Lake Mansfield, and Pontoosuc Lake (in draft at the time of this report).

Objective 2.1 Support all lake water quality restoration and/or management efforts that are consistent with environmental agencies' and the former watershed team's goals.

Objective 2.2 Conduct an assessment for Onota Lake and Watershed and continue efforts to implement the use of non-chemical maintenance alternatives.

Onota Lake is the largest body of water in the Housatonic Watershed and is also within the City of Pittsfield's boundaries. It contains a large municipal recreation area, several summer camps, and a large residential area that is organized as the Lake Onota Preservation Association (LOPA). In 2000-2001, the lake received what is purported to be the largest whole lake treatment of herbicides for the purposes of reducing the growth of Eurasian Watermilfoil. Following the recommendations of a Diagnostic and Feasibility Study completed in 1991, several other projects have or are currently being implemented, including a S.319 flow alteration project.

LOPA is working with several government and private partners to implement a ecologically-sound whole lake management plan in an effort to avoid continued and prolonged use of herbicides. This would be accomplished through an analysis of herbicide treatment success, Macrophyte mapping and monitoring, and review of non-chemical maintenance alternatives, a better understanding of nutrient sources, and the updating of the Lake Onota Management Plan.

Objective 2.3 Conduct a Lake Watershed Survey of Center Pond.

Center Pond is listed on the 303(d) list due to Priority Organics (PCB). It has also been identified as having serious sedimentation impairments. There is presently a lack of base-line data regarding this water body. To ameliorate this situation, a Lake Watershed Survey of Center Pond which looks at present land use activities, needs to be prepared, as well as a report that documents findings and recommends appropriate remedial or mitigation actions. The project will also enlist the support of the Department of Public Health in examining fish tissue toxicity and potential reconsideration of 303(d) listing.

Objective 2.4 Develop a comprehensive management plan for Pontoosuc Lake pursuant to state ownership and management.

Pontoosuc Lake comprises about 480 acres and is situated on the municipal boundaries of the City of Pittsfield and the Town of Lanesborough. Until June 30, 2000, Berkshire County owned it. Upon dissolution, ownership was transferred to the Commonwealth. It is anticipated that DEM will ultimately have responsibility for "care and control" of this lake. There are a myriad of management issues associated with this water body including:

- Two municipal jurisdictions
- Extensive residential, roadway, and commercial development
- A large municipal park and swimming beach
- A dam that gets maintained and operated under City of Pittsfield Orders of Conditions
- An active fish stocking program on the part of Mass. DFWELE
- A Lake Watershed Association
- An active, year-round recreational constituency
- Outstanding roadway and stormwater-related problems
- An ongoing weed harvesting program presently conducted by the City of Pittsfield

Objective 2.5 Support efforts to bring lake watershed onsite wastewater systems up to current performance standards (Title V) and/or the sewering of existing lake watershed properties.

Richmond Pond is a 218 acre lake in the Town of Richmond and City of Pittsfield that has been the focus of the Richmond Pond Committee to implement water quality improvements and sustainable long-term management practices.

Objective 2.6 Secure ongoing water quality laboratory analysis services within the region of Berkshire County.

The FY03 Water Quality Analysis Project is a continuation of a project initiated through the use of FY01 monies and is currently provided through a laboratory services contract. Volunteer Monitors will collect river and lake water quality samples following Quality Assurance Project Plan(s) (QAPP) and /or accepted Standard Operating Procedures (SOP). Following up on the 2002 DEP and Volunteer data collection, this new data collection will primarily target hot spots

and stormwater events. This bracketing and confirmation data will provide the basis for mitigation strategies to be developed for specific impaired segments and/or water bodies.

The project goal is to secure a contract for services with a water quality laboratory that is located in Berkshire County, or is a maximum two hours driving time (80 miles) between said lab and the furthest most point from the lab in the Massachusetts Hudson and Housatonic Watershed.

Objective 2.7 Provide water quality data collection resources for specific place-based applications (i.e., a Lake Steward or other volunteer monitoring support).

DEP, Volunteer Monitors, DEM, and DFWELE will be coordinating their data collecting through calendar year 2002, consistent with the watershed planning cycle. The 2002 data collection will be directed at filling data gaps identified in the DEP 1997 Water Quality Assessment, will help narrow the focus to potential "hot spots," and provide some monitoring during precipitation events. Following up on the 2002 data collection, the 2003 data collection and assessment will be strictly focused on bracketing and confirming the problem areas identified in 2002. This confirming data will provide the basis for mitigation strategies to be developed for specific impaired segments and/or water bodies.

The goal of the former watershed team was to provide water quality data collection resources for specific place-based applications based on the information gathered in calendar 2002. The additional data will provide the basis for specific, targeted mitigation strategies to be developed for implementation in 2004.

Objective 2.8 Develop a water quality database sufficient to provide trend analysis.

Existing water quality data in the Housatonic River Watershed consists of non-sequential sampling events taken five or more years apart. The regular sampling program of the DEP does not provide sufficient information from which to draw conclusions related to water quality trends over time, in relation to development and different land use activities or during specific weather events like drought or severe storms.

Goal #3 Enhance Environmental Education and Natural Resources Stewardship

Objective 3.1 Support the outreach and education efforts of LAPA West and provide sponsorship and developmental support to the Annual Water Resources Symposium.

The primary goal of the Western Massachusetts Lakes and Ponds Network Project is to develop an active and effective network of stakeholders interested in improving water quality in the lakes and ponds of the watersheds in Western Massachusetts: the Hudson, Housatonic, Farmington, Westfield, Deerfield, and Connecticut River watersheds. Such a network will improve water quality in these water bodies through informed decision making based on the best available scientific evidence and data collection practices, efficient use of existing data and information,

and shared and cooperative use of limited resources for implementation of lake management programs and specific remediation projects.

The former Westfield, Farmington, Housatonic, and Hudson watershed teams have worked collaboratively to support this goal by conducting an annual Lake/Water Resources Symposium. Over 100 people have attended each of the first three symposiums. This project builds upon those symposiums and expands that program to cover all water resources in this region. The four sponsoring former watershed teams have as a primary goal to institutionalize this symposium for state sponsorship on an annual basis. A year-round collaborative planning process will be utilized to culminate in a daylong symposium in September of each year. The format, topics, and agenda for the symposium will be determined with input from the respective EOEA agencies and water resources organizations, whose mission is consistent with the educational goals of this project. The ultimate goal of the former western watershed teams is to have a western Water Resources Symposium "institutionalized" so as to be annually supported in part by the EOEA agencies.

Objective 3.2 Develop a place-based Housatonic Watershed Education Curriculum for grades K-12 that is consistent with the Massachusetts Education Frameworks.

The Housatonic Watershed contains a vibrant and active environmental education community comprised of a broad array of private program providers, informal private place-based environmental programs, and formal private and public K-12 educational institutions. What is lacking is a K-12 watershed-based education activity guide, specific to this geographic region and based on the Massachusetts Educational Frameworks. Several global curricula would be utilized for reference purposes including National Project WET, Wonders of Wetlands, and Watershed to Bay. The place-based adaptation could be modeled after the work done by the Massachusetts Bays Education Alliance.

Objective 3.3 Support the development and maintenance of Stream Teams and conduct shoreline surveys, pursuant to the DFWELE Riverways Program Adopt-A-Stream Program.

Stream Teams are an active and integral part of the Housatonic River Watershed, working locally on stream flow, water quality, cleanups, and educational issues. This project would fund support for existing Stream Teams and new Stream Team development. Stream Team support would include follow up and implementation work on specific projects. This project seeks to implement some of the recommendations of the East Branch and West Branch Housatonic River Stream Teams as well as to support the development of new teams. The implementation priorities include storm drain mapping and the development of a management plan for the Hinsdale Flats Area of Critical Environmental Concern (ACEC).

Objective 3.4 Provide technical assistance and educational outreach through the Nonpoint Source Education for Municipal Officials (NEMO) program, for both general education purposes as well as for specific land-use, development, and redevelopment projects.

Nonpoint source pollution is one of the most pressing water quality issues in Massachusetts. Land-based sources of nonpoint source pollution impact water quality through runoff. The land use impacts on water quality are generally unfamiliar to local officials or, where they are known, not given much attention or prominence. Specifically, there is a strong link between impervious surfaces and water quality. These surfaces allow atmospheric and land-based pollutants to accumulate only to be washed to the closest stream or pond during the "first flush" of a rainstorm ("first flush" refers to the first 0.25"-1" of rainfall). Increased awareness of the ramifications of increased impervious surface and concurrent decrease of natural areas will ultimately lead to modifications of land use regulations and development practices and ultimately to improved water quality.

Building on a successful program from the University of Connecticut's Cooperative Extension Service, NEMO is an educational program that seeks to increase local environmental knowledge and the capacity of municipal officials to address the pervasive water quality problem of nonpoint source pollution. By working with the decision makers in a community, this project has the rare opportunity to impact long-term decision making and environmental goal setting. As an educational program, this project will build the capacity of town officials and help them make decisions that mitigate the environmental impact of municipal planning and development. NEMO aims to lay the foundation for long-term sustainable improvements in water quality.

The overall goals of NEMO are to raise awareness of the land use impacts on water quality, especially those impacts that result from municipal decisions over land use within their town. NEMO identifies the link between growth/development and water quality/quality of life issues. NEMO is designed to be an educational and technical assistance program that continues to function far after the initial investment.

Objective 3.5 Engage the watershed community in addressing environmental issues that are of regional importance.

EOEA seeks to provide coordination of environmental efforts in the watershed and facilitate funding of priority projects. Government agencies and environmental groups are the most active participants in the process as of yet, but municipalities, businesses, and citizen's groups have great opportunities to gain from the resources of EOEA. Likewise, citizen involvement and feedback is critical to the establishment of priorities and ensuring continued support for protection and management of the watershed.

Goal #4 Support Environmentally Sustainable Growth

Objective 4.1 Support the creation of the municipal and inter-municipal Open Space and Recreation Plans and help strengthen the environmental elements of the Community Development Plans (under Executive Order 418 (EO418)).

The goals of EO418 are to give every community in the Commonwealth the tools they need to provide new housing opportunities while balancing economic growth, transportation, and

infrastructure improvements and open space preservation. Twelve towns in the Housatonic Watershed are in the process of creating Community Development Planning through EO 418. Under this program, an Open Space and Natural Resource element is a required component of the plan, and a high amount of coordination and cooperation will increase the efficacy and relevancy of the end product. Support is especially needed for towns that are creating building blocks for and/or completing Open Space and Recreation Plans (OSRP).

Objective 4.2 Support the implementation of brownfields and other redevelopment projects, maximizing opportunities for "regreening" and more environmentally sound reuse.

The formation of a coalition of economic development and environmental interests is underway in the Housatonic Watershed. This coalition, the Berkshire Brownfields Reclamation Program, is seeking funds from EPA to conduct site assessments of up to 20 brownfields. The coalition will evaluate both economic and environmental aspects of brownfields reclamation and revitalize real or perceived brownfields sites throughout the Berkshires, especially along the Housatonic River.

Objective 4.3 Support efforts to enhance and strengthen the local economic base through sustainable production of value-added products.

Approximately 85-90% of the western Massachusetts watershed land base is forested, over 80% of which is owned by non-industrial forest landowners including many families. The health and future well-being of the watersheds will be determined in large part by the management of these private forests. The Massachusetts Forest Stewardship Program is a collection of officials from DEM, UMass, and the MA Forest Stewardship Program that has organized the Massachusetts Woodlands Cooperative (MWC). The cooperative's mission is to maintain the environment and character of western Massachusetts through the protection, enhancement, and careful economic development of one of the region's most plentiful resources. MWC also seeks to protect wetlands, enhance wildlife habitat, reverse the practice of high grading timber, invigorate the local economy, and provide educational programs for its members and the general public.

Objective 4.4 Increase capacity for municipal officials to effectively respond to development proposal as well as proactively engage in growth management.

Few towns in the Housatonic River Watershed have professional staff to review development proposals. Though MGL Ch. 44, s 53G, gives local boards the authority to require development proponents to provide funds to municipalities to hire experts to review large or complex projects, not all towns exercise this right. Moreover, some municipalities have conflicting requirements of their own that complicate the development process for the applicants.

Goal #5 Protect and Increase Biodiversity Conservation

Objective 5.1 Develop a successful strategy and process for prioritizing and implementing restoration of riparian, wetlands, and other water resource areas.

Objective 5.2 Integrate ecosystem assessment databases and biological inventory information so that the data can be utilized to support land use and land protection efforts.

Objective 5.3 Support local initiatives and organizations that are engaged in environmental education, biodiversity and habitat protection, and/or open space protection.

Objective 5.4 Support research, management, and protection strategies for State-designated ACECs.

Objective 5.5 Investigate possible dam removal projects on all river segments for the purposes of restoring natural river functions (geomorphology) to the extent practicable.

Objective 5.6 Research status of stressed habitats from reduced flows related to surface water supplies and water withdrawals.

Objective 5.7 Initiate and support enhancement opportunities for wildlife, wetlands, and biodiversity.

Chapter 4 – Action Strategies

In most cases specific actions are being taken, or have been identified to be taken. However, identifying actions in a 5-Year context proved a difficult task because of rapid change within government at all levels, as well as within the watershed. Availability of resources, responsiveness of project partners, bureaucracy beyond EOEA's control, and new information continually forced the former team to adjust and modify its assumptions, approach, and expectations to these dynamic circumstances. This chapter is an effort to capture the current and proposed actions as accurately as they could be determined at the time they were formulated.

Goal #1 Ensure the Remediation and Restoration of the Housatonic River

Objective 1.3 Participate in the Natural Resources Damage (NRD) Trustee Council restoration planning and implementation process.

Actions:

1.1.1 Support remediation and restoration of the Housatonic River through the restoration oversight work of the former WTL; the Housatonic River Initiative (HRI) and its PCB removal advocacy; and the Housatonic River Restoration, Inc. (HRR), and its collaborative restoration planning and implementation process.

1.1.2 Participate in the EPA-sponsored Citizens Coordinating Council (CCC), focusing on the development and implementation of the CD and GE remediation and restoration of the Housatonic River from polychlorinated biphenyl (PCB's) contamination.

Objective 1.4 Support the further development and implementation of the Housatonic River Restoration Plan.

Actions:

1.1.1 Advance the HRR restoration plan pursuant to the NRD settlement with GE.

1.1.2 Assist HRI in identifying additional funding sources.

1.1.3 Serve as the representative of the EOEA on the Steering Committee.

Goal #2 Work to Improve Water Quality and to Mitigate Accelerated Eutrophication of Lakes and Ponds

Objective 2.2 Conduct an assessment for Onota Lake and Watershed and continue efforts to implement the use of non-chemical maintenance alternatives.

Actions:

2.2.1 Conduct a professional Macrophyte survey of the entire lake.

2.2.2 Train an existing group of LOPA volunteers to continue macrophyte monitoring.

2.2.3 Produce a Lake and Shoreline Watershed Survey according to the guidelines in the DEP/Riverways guide.

2.2.4 Perform a literature and lake data review for the development of sustainable practices associated with the management of exotic aquatic invasive plants.

2.2.5 Revise and update the Lake Onota Management Plan.
2.2.6 Report findings to the Western Massachusetts Water Resources Symposium.

Objective 2.3 Conduct a Lake Watershed Survey of Center Pond.

Actions:
2.3.1 Organize local constituents in the Center Pond subwatershed (Town of Dalton) to conduct a lake watershed and shoreline survey.
2.3.2 Conduct a survey and write a report following the guidelines as described in the "Massachusetts Volunteers Guide for Surveying a Lake Watershed and Preparing an Action Plan" guide.
2.3.3 Solicit input from the community and state regulatory agencies regarding their concerns and interests in Center Pond.
2.3.4 Collect additional Center Pond subwatershed water quality, fish tissue, and stormwater data.
2.3.5 Develop recommendations for remedial or mitigation actions relative to confirmed impairments.
2.3.6 Report findings at the following Western Massachusetts Water Resources Symposium.

Objective 2.4 Develop a comprehensive management plan for Pontoosuc Lake pursuant to state ownership and management.

Actions:
2.4.1 Develop a comprehensive management plan to guide the care and control practices and policies of the Commonwealth's lake management entity.

Objective 2.6 Secure ongoing water quality laboratory analysis services within the region of Berkshire County.

Actions:
2.6.1 Prepare a Request for Proposal to advertise for such a laboratory.

Objective 2.7 Provide water quality data collection resources for specific place-based applications (i.e., a Lake Steward or other volunteer monitoring support).

Actions:
2.7.1 Develop Quality Assurance Program Plans (QAPPs) for up to two targeted segment/water bodies.
2.7.2 Provide two sets of confirming data for the targeted segment/water bodies.
2.7.3 Produce a mitigation plan for each confirmed location.

Objective 2.8 Develop a water quality database sufficient to provide trend analysis.

Actions:

2.8.1 Develop generic protocols for water quality analysis that will allow volunteer water quality monitoring programs to collect samples that meet state reporting requirements. This information can be used to augment state data, helping to create a body of data from which trends in water quality can be interpreted.

2.8.2 Test water quality in tributaries, as well as in the Main Stem of the Housatonic River.

2.8.3 Increase capacity to collect samples over regularly established time periods and in response to specific weather conditions.

2.8.4 Provide financial and laboratory support to local Stream Teams.

Goal #3 Enhance Environmental Education and Natural Resources Stewardship

Objective 3.1 Support the outreach and education efforts of LAPA West and provide sponsorship and developmental support to the Annual Water Resources Symposium.

Actions:

3.1.1 Provide direct assistance to volunteer monitors to develop lake-specific water quality monitoring programs.

3.1.2 Provide training to regional water quality monitoring groups; assist local groups in conducting monitoring.

3.1.3 Expand an existing program for shared use of water quality monitoring equipment.

3.1.4 Develop a comprehensive method to compile and disseminate water quality monitoring data.

3.1.5 Participate and contribute to the planning of the Western Mass Lakes and Ponds Symposium by providing all organizational, outreach, registration, implementation, and evaluation materials and processes.

3.1.6 Develop an outreach packet of material from the symposium for distribution and reference by lake and pond associations, watershed associations, and EOEA agencies.

Objective 3.2 Develop a place-based Housatonic Watershed Education Curriculum for grades K-12 that is consistent with the Massachusetts Education Frameworks.

Actions:

3.2.1 Conduct three workshops held during the school year for teachers of grades 1-4, 5-8, and 9-12, respectively.

3.2.2 Develop a K-12 preliminary draft Housatonic Watershed Education Activity Guide (activity guide and watershed-specific reference material).

3.2.3 Hold a three-day summer workshop to present the entire K-12 Watershed Education program to a group of local formal and informal environmental educators.

3.2.4 Produce a final draft of the Housatonic Watershed Education Guide

3.2.5 Report findings at the following Western Massachusetts Water Resources Symposium.

Objective 3.3 Support the development and maintenance of Stream Teams and conduct shoreline surveys, pursuant to the DFWELE Riverways Program's Adopt-A-Stream Program.

Actions:

3.3.1 Conduct training, action planning, and follow up support with the Riverways staff and existing local river stewards.

3.3.2 Continue Stream Team assistance in providing workshops, presentations, training sessions, how-to-guidance materials, a web page, site visits, and consultations.

3.3.3 Make Stream Team Reports and Action Plans available to EOEA, the town boards, and DEP.

3.3.4 Identify and implement projects through the Stream Teams that lead to improvement of impaired waterways.

Objective 3.4 Provide technical assistance and educational outreach through the Nonpoint Source Education for Municipal Officials (NEMO) program, for both general education purposes as well as for specific landuse, development, and redevelopment projects.

Actions:

3.4.1 Develop high quality computer-generated slide and GIS presentations and fact sheets aimed at municipal officials and local decision makers.

3.4.2 Conduct at least one outreach meeting per community to encourage long-term decision making and environmental goal setting.

3.4.3 Deliver follow-up presentations, tailored to the specific needs of individual communities, to at least two communities, not to exceed 5 additional presentations.

3.4.4 Assist each community in determining the options that best facilitate improving water quality. This may include GIS services, review of current by-laws, review of land-use practices in the municipality, and recommendations for stormwater best management practices.

3.4.5 Direct technical assistance to individual municipal boards to implement planning tools compatible with the options available.

3.4.6 Develop and apply municipal environmental evaluations. This may include a number of boards receiving and responding to NEMO presentations, and an assessment of actions taken in response to the presentations, as well as adoption of planning tools or strategies by contacted municipalities.

3.4.7 Build the capacity of town officials and help them make decisions that mitigate the environmental impact of municipal planning and development.

3.4.8 Engage local colleges and environmental interests in concert with NEMO objectives.

Objective 3.5 Engage the watershed community in addressing environmental issues that are of regional importance.

Actions:

3.5.1 Schedule special topic meetings to focus on municipal issues that would attract different boards as well as citizens.

3.5.2 Prepare press releases addressing educational and training opportunities.

3.5.3 Organize a networking forum for all local environmental groups to get to know each other and exchange resources.

3.5.4 Provide financial and organizational support to local environmental groups performing outreach in the watershed. Many of these groups participate in the HRR, Inc., which can be a forum for assessing individual organizations' needs.

Goal #4 Support Environmentally Sustainable Growth

Objective 4.1 Support the creation of the municipal and inter-municipal Open Space and Recreation Plans and help strengthen the environmental elements of the Community Development Plans (under EO 418).

Actions:

4.1.1 Conduct a region-wide meeting for members of the respective open space committees and conservation commissions to determine project data needs and provide an opportunity to share regional information as it relates to open space and natural resource protection.

4.1.2 Support the individual committees as needed.

Objective 4.2 Support the implementation of brownfields and other redevelopment projects, maximizing opportunities for "regreening" and more environmentally sound reuse.

Actions:

4.2.1 Develop a process for identification of priority sites.

4.2.2 Conduct Phase I and Phase II site assessments of brownfields sites. Phase I assessments involve investigation of prior land uses and activities conducted on a site. Phase II assessments involve testing levels of contamination on a site.

Objective 4.3 Support efforts to enhance and strengthen the local economic base through sustainable production of value-added products.

Actions:

4.3.1 Hire a contractor to identify potential value-added products for the cooperative.

4.3.2 Assess feasibility of producing identified products at existing locations and expanding the operation to additional sites.

4.3.3 Conduct a study to determine the best marketing strategy of locally grown, green certified, and value added products.

4.3.4 Provide the results of these studies to the MWC, DEM, and EOEA.

Objective 4.4 Increase capacity for municipal officials to effectively respond to development proposal as well as proactively engage in growth management.

Actions:

4.1.1 Annually review municipal by-laws to assure coordination with changing state regulations. Begin with local by-laws addressing areas that are now covered under the Riverfront Area regulations of the Wetlands Protection Act.

4.1.2 Review existing Board of Health regulations and recommend the upgrade or adoption of regulations where appropriate. For example, the use of Innovative and Alternative septic systems may be incorporated into existing municipal setback requirements from surface waters or wetlands.

4.1.3 Provide regular training sessions on all state regulations enforced by local Boards of Health, planning and zoning boards, conservation commissions, etc., as a "refresher" and for new board members. For example, when the regulations for Title 5 changed, there were many workshops across the state, but now the workshops are not available, though new board members need the information.

4.1.4 Explore the institution of development "sign-off" sheets, or "all-board" meetings to review development proposals and assure that individual board requirements do not conflict with others. A common situation occurs when a proposed land use meets zoning regulations but also has an impact on a resource area, such as grandfathered gravel pits that may be violating wetlands protection requirements.

4.1.5 Utilize the DEP wetlands circuit rider program. Many volunteer conservation commissions lack staff support for administration and enforcement of existing regulations that are protective of water quality.

Chapter 5 – Action Matrix

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 1: Ensure the Remediation and Restoration of the Housatonic River	Participate in the implementation of the GE/Agencies Consent Decree (CD), for the remediation and restoration of the Housatonic River and its environs from Polychlorinated Biphenyls (PCBs) contamination	
	Pursuant to 1.1, Participate in the Citizens Coordinating Council (CCC) community involvement process	
	Participate in the Natural Resources Damages (NRD) Trustee Council restoration planning and implementation process	Support remediation and restoration of the Housatonic River through the restoration oversight work of the former Watershed Team Leader (WTL); the Housatonic River Initiative (HRI) and its PCB removal advocacy; and the Housatonic River Restoration, Inc. (HRR), and its collaborative restoration planning and implementation process.
		Participate in the EPA-sponsored CCC, focusing on the development and implementation of the Government Consent Decree and GE remediation and restoration of the Housatonic River from polychlorinated biphenyl (PCB's) contamination.
	Support the further development and implementation of the Housatonic River Restoration Plan	Advance the HRR restoration plan pursuant to the NRD settlement with GE
		Assist HRI in identifying additional funding sources
		Serve as the representative of EOEA on the Steering Committee

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 2: Work to Improve Water Quality and to Mitigate Accelerated Eutrophication of Lakes and Ponds	Support all lake water quality restoration and/or management efforts that are consistent with environmental agencies' and the former watershed team's goals	
	Conduct an assessment for Onota Lake and Watershed and continue efforts to implement the use of non-chemical maintenance alternatives	Conduct a professional Macrophyte survey of the entire lake
		Train an existing group of LOPA volunteers to continue macrophyte monitoring
		Produce a Lake and Shoreline Watershed Survey according to the guidelines in the DEP/Riverways guide
		Perform a literature and lake data review for the development of sustainable practices associated with the management of exotic aquatic invasive plants
		Revise and update the Lake Onota Management Plan
		Report findings to the Western Massachusetts Water Resources Symposium
	Conduct a Lake Watershed Survey of Center Pond	Organize local constituents in the Center Pond subwatershed (Town of Dalton) to conduct a lake watershed and shoreline survey
		Conduct a survey and write a report following the guidelines as described in the "Massachusetts Volunteers Guide for Surveying a Lake Watershed and Preparing an Action Plan" guide

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 2: Work to Improve Water Quality and to Mitigate Accelerated Eutrophication of Lakes and Ponds	Conduct a Lake Watershed Survey of Center Pond	Solicit input from the community and state regulatory agencies regarding their concerns and interests in Center Pond
		Collect additional Center Pond subwatershed water quality, fish tissue, and stormwater data
		Develop recommendations for remedial or mitigation actions relative to confirmed impairments
		Report out findings at the following Western Massachusetts Water Resources Symposium
	Develop a comprehensive management plan for Pontoosuc Lake pursuant to state ownership and management	Develop a comprehensive management plan to guide the care and control practices and policies of the Commonwealth lake management entity
	Support efforts to bring lake watershed onsite wastewater systems up to current performance standards (Title V) and/or the sewering of existing lake watershed properties	
	Secure ongoing water quality laboratory analysis services within the region of Berkshire County	Prepare a Request for Proposal to advertise for such a laboratory
	Provide water quality data collection resources for specific place-based applications (i.e. a Lake Steward or other volunteer monitoring support)	Develop Quality Assurance Program Plans (QAPPs) for up to two targeted segment/water bodies
		Provide two sets of confirming data for the targeted segment/water bodies.
		Produce a mitigation plan for each confirmed location

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 2: Work to Improve Water Quality and to Mitigate Accelerated Eutrophication of Lakes and Ponds	Develop a water quality database sufficient to provide trend analysis	Develop generic protocols for water quality analysis that will allow volunteer water quality monitoring programs to collect samples that meet state reporting requirements
		Test water quality in tributaries, as well as in the Main Stem of the Housatonic River
		Increase capacity to collect samples over regularly established time periods and in response to specific weather conditions
		Provide financial and laboratory support to local Stream Teams

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 3: Enhance Environmental Education and Natural Resources Stewardship	Support the outreach and education efforts of LAPA West and provide sponsorship and developmental support to the Annual Water Resources Symposium	Provide direct assistance to volunteer monitors to develop lake-specific water quality monitoring programs
		Provide training to regional water quality monitoring groups; assist local groups in conducting monitoring
		Expand an existing program for shared use of water quality monitoring equipment
		Develop a comprehensive method to compile and disseminate water quality monitoring data
		Participate and contribute to the planning of the Western Mass Lakes and Ponds Symposium by providing all organizational, outreach, registration, implementation, and evaluation materials and processes
		Develop an outreach packet of material from the symposium for distribution and reference by lake and pond associations, watershed associations, and EOEA agencies
	Develop a place-based Housatonic Watershed Education Curriculum for grades K-12 that is consistent with the Massachusetts Education Frameworks	Conduct three workshops held during the school year for teachers of grades 1-4, 5-8, and 9-12, respectively
		Develop a K-12 preliminary draft Housatonic Watershed Education Activity Guide (activity guide and watershed-specific reference material)

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 3: Enhance Environmental Education and Natural Resources Stewardship	Develop a place-based Housatonic Watershed Education Curriculum for grades K-12 that is consistent with the Massachusetts Education Frameworks	Hold a three day summer workshop to present the entire K-12 Watershed Education program to a group of local formal and informal environmental educators
		Produce a final draft of the Housatonic Watershed Education Guide
		Report findings at the following Western Massachusetts Water Resources Symposium
	Support the development and maintenance of Stream Teams and the conduction of shoreline surveys, pursuant to the DFWELE Riverways Program Adopt-A-Stream Program	Conduct training, action planning, and follow up support with the Riverways Staff and existing local river stewards
		Continue Stream Team assistance in providing workshops, presentations, training sessions, how-to-guidance materials, a web page, site visits and consultations
		Make Stream Team Reports and Action Plans available to EOEA, town boards and DEP
		Identify and implement projects through the Stream Teams that lead to improvement of impaired waterways
	Provide technical assistance and educational outreach through the Nonpoint Source Education for Municipal Officials (NEMO) program, for both general education purposes as well as for specific land-use, development, and redevelopment projects	Develop high quality computer-generated slide and GIS presentations and fact sheets aimed at municipal officials and local decision makers

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 3: Enhance Environmental Education and Natural Resources Stewardship	Provide technical assistance and educational outreach through the Nonpoint Source Education for Municipal Officials (NEMO) program, for both general education purposes as well as for specific landuse, development, and redevelopment projects	Conduct at least one outreach meeting per community to encourage long-term decision making and environmental goal setting
		Deliver follow-up presentations, tailored to the specific needs of individual communities, to at least two communities, not to exceed 5 additional presentations
		Assist each community in determining the options that best facilitate improving water quality. This may include GIS services, review of current by-laws, review of land-use practices in the municipality, and recommendations for stormwater best management practices
		Direct technical assistance to individual municipal boards to implement planning tools compatible with the options available
		Develop and apply municipal environmental evaluations. This may include number of boards receiving and responding to NEMO presentations, and an assessment of actions taken in response to the presentations; adoption of planning tools or strategies by contacted municipalities
		Build the capacity of town officials and help them make decisions that mitigate the environmental impact of municipal planning and development

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 3: Enhance Environmental Education and Natural Resources Stewardship	Provide technical assistance and educational outreach through the Nonpoint Source Education for Municipal Officials (NEMO) program, for both general education purposes as well as for specific landuse, development, and redevelopment projects	Engage local colleges and environmental interests in concert with NEMO objectives
	Engage the watershed community in addressing environmental issues that are of regional importance	Schedule special topic meetings to focus on municipal issues that would attract different boards as well as citizens
		Prepare press releases addressing educational and training opportunities
		Organize a networking forum for all local environmental groups to get to know each other and exchange resources
		Provide financial and organizational support to local environmental groups performing outreach in the watershed. Many of these groups participate in the Housatonic River Restoration, Inc. It can be a forum for assessing individual organizations' needs

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 4: Support Environmentally Sustainable Growth	Support the creation of the municipal and inter-municipal Open Space and Recreation Plans and help strengthen the environmental elements of the Community Development Plans (under EO 418)	Conduct a region-wide meeting for members of the respective open space committees and conservation commissions to determine project data needs and provide an opportunity to share regional information as it relates to open space and natural resource protection
		Support the individual committees as needed
	Support the implementation of brownfields and other redevelopment projects, maximizing opportunities for "regreening" and more environmentally sound reuse	Develop a process for identification of priority sites
		Conduct Phase I and Phase II site assessments of brownfields sites. Phase I assessments involve investigation of prior land uses and activities conducted on a site. Phase II assessments involve testing levels of contamination on a site
	Support efforts to enhance and strengthen the local economic base through sustainable production of value-added products	Hire a contractor to identify potential value-added products for the cooperative
		Assess feasibility of producing identified products at existing locations and expanding the operation to additional sites
		Conduct a study to determine the best marketing strategy of locally grown, green certified, and value added products.
		Provide the results of these studies to the MWC, DEM, and EOEA
	Increase capacity for municipal officials to effectively respond to development proposal as well as proactively engage in growth management	Annually review municipal bylaws to assure coordination with changing state regulations. Begin with local by-laws addressing areas that are now covered under the Riverfront Area regulations of the Wetlands Protection Act

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 4: Support Environmentally Sustainable Growth	Increase capacity for municipal officials to effectively respond to development proposal as well as proactively engage in growth management	Review existing Board of Health regulations and recommend the upgrade or adoption of regulations where appropriate. For example, the use of Innovative and Alternative septic systems may be incorporated into existing municipal setback requirements from surface waters or wetlands
		Provide regular training sessions on all state regulations enforced by local Boards of Health, planning and zoning boards, conservation commissions, etc., as a "refresher" and for new board members. For example, when the regulations for Title 5 changed, there were many workshops across the state, but now the workshops are not available, though new board members need the information
		Explore the institution of development "sign-off" sheets, or "all board" meetings to review development proposals and assure that individual board requirements do not conflict with others
		Utilize the DEP wetlands circuit rider program. Many volunteer conservation commissions lack staff support for administration and enforcement of existing regulations that are protective of water quality

GOAL	OBJECTIVE	ACTION STRATEGY
Goal 5: Protect and Increase Biodiversity Conservation	Develop a successful strategy and process for prioritizing and implementing restoration of riparian, wetlands, and other water resource areas	
	Integrate ecosystem assessment databases and biological inventory information so that the data can be utilized to support land use and land protection efforts	
	Support local initiatives and organizations that are engaged in environmental education, biodiversity and habitat protection, and/or open space protection	
	Support research, management, and protection strategies for state-designated Areas of Critical Environmental Concern (ACEC)	
	Investigate possible dam removal projects on all river segments for the purposes of restoring natural river functions (geomorphology) to the extent practicable	
	Research status of stressed habitats from reduced flows related to surface water supplies and water withdrawals	
	Initiate and support enhancement opportunities for wildlife, wetlands, and biodiversity	

Chapter 6 – Conclusion

The former Housatonic Watershed Team has, through this Watershed Action Plan, documented the achievement of an integrated, locally based watershed approach to environmental advocacy and improvement. The Housatonic Watershed has within it a diverse and dedicated mix of individuals and organizations whose personal and professional lives revolve around improving the quality of life in this watershed. The role of EOEA served simply to help facilitate this process through providing a neutral venue for prioritizing projects as well as to provide a positive and streamlined interface with government programs and processes.

The Watershed Action Plan reflects the work of several organizations, which include the following:

- The Housatonic River Initiative sponsored more than sixty public and invitational meetings in the development of a Housatonic River Restoration Plan (consisting of more than 1200 participants)
- The Berkshire Regional Planning Commission and the Lakes and Ponds Associations of western Massachusetts sponsored annual Water Resources Symposiums , water quality monitoring, and nonpoint source pollution mitigation projects
- The Housatonic Valley Association, through its water quality monitoring projects and stream teams, represented a broad spectrum of river advocates
- The many agency people who brought their institutional knowledge to the planning process
- The municipal officials who recognized the value of the watershed approach

The Watershed Action Plan will be implemented to the extent that the players within the watershed continue to recognize their common interests and work together toward achieving their common goals. There is considerable and sufficient organizational capacity within the watershed. Full implementation of this Watershed Action Plan, as well as the achievement of additional environmental goals, will depend on the extent to which this cooperative spirit is recognized and nurtured.

Appendix A – Members of the former Housatonic Watershed Team

Dennis Regan, Housatonic Valley Association, Berkshire Office

Rachel Fletcher, Housatonic River Restoration, Inc. (HRR)

Shepley Evans, Environmental Advocate

Amy Pfeufer, Berkshire Regional Planning Commission (BRPC)

Ruth Dinerman, Center for Ecological Technology

Russell Cohen, Riverways Programs, Department of Fisheries, Wildlife, and Environmental Law Enforcement

Mark Schleeweis, Department of Environmental Protection, Western Regional Office, Bureau of Resource Protection (DEP/WERO/BRP)

Bill Prendergast, DEP/WERO/BRP

Tracey Miller, DEP/WERO Bureau of Municipal Services

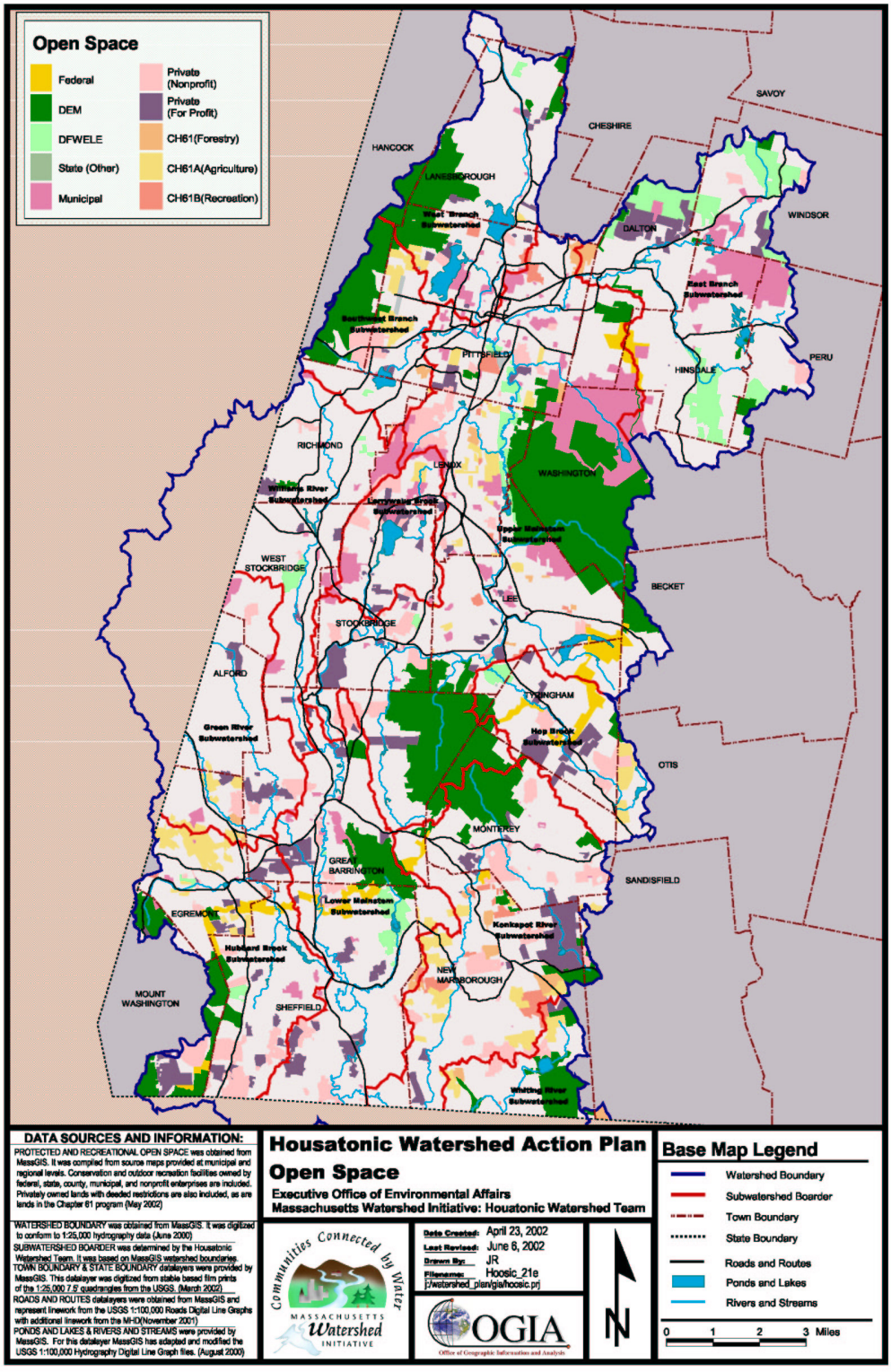
Peter Mitchell, DEP/OWM

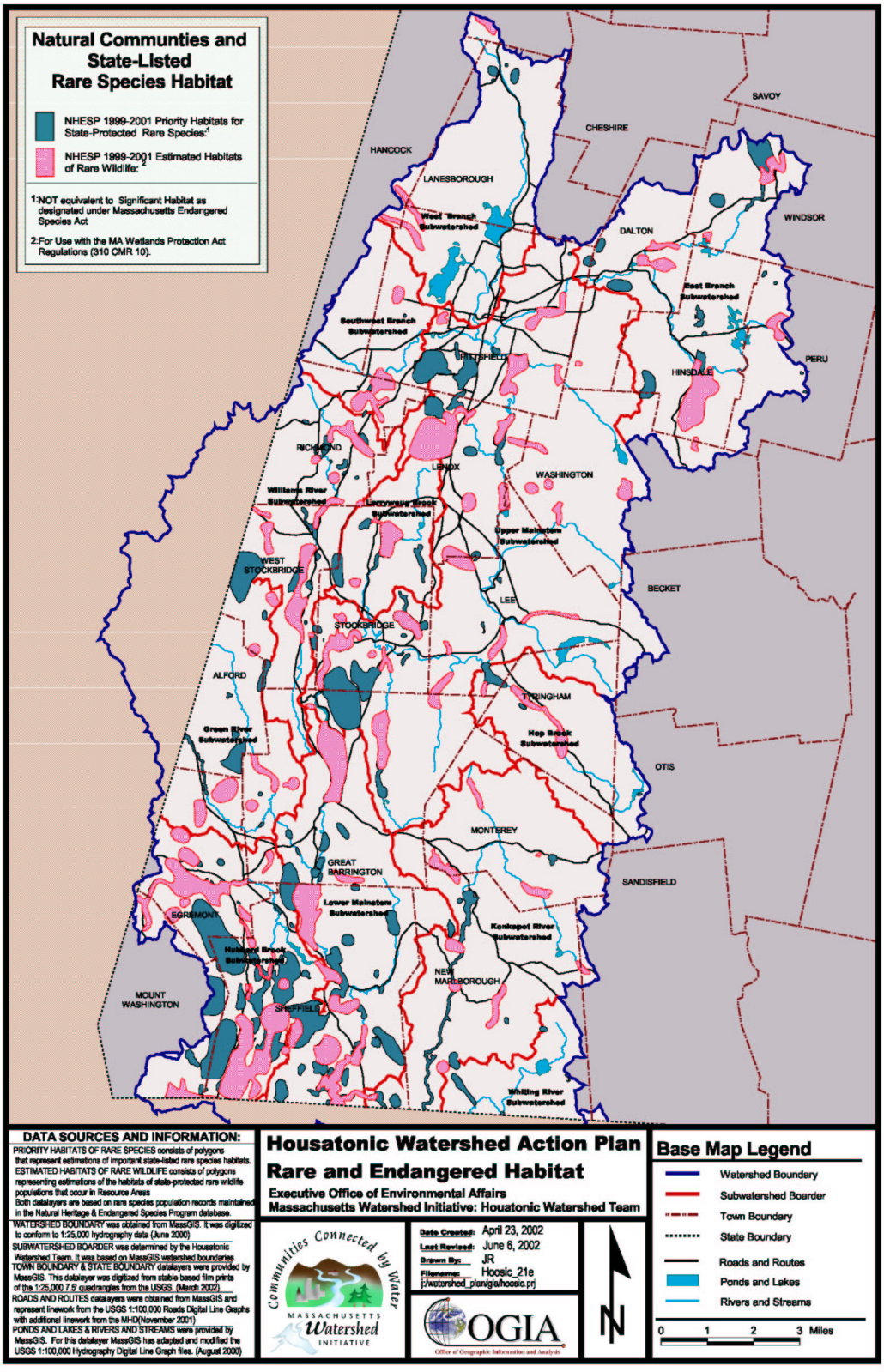
Allison Lassoe, Department of Environmental Management, Division of Resources Conservation

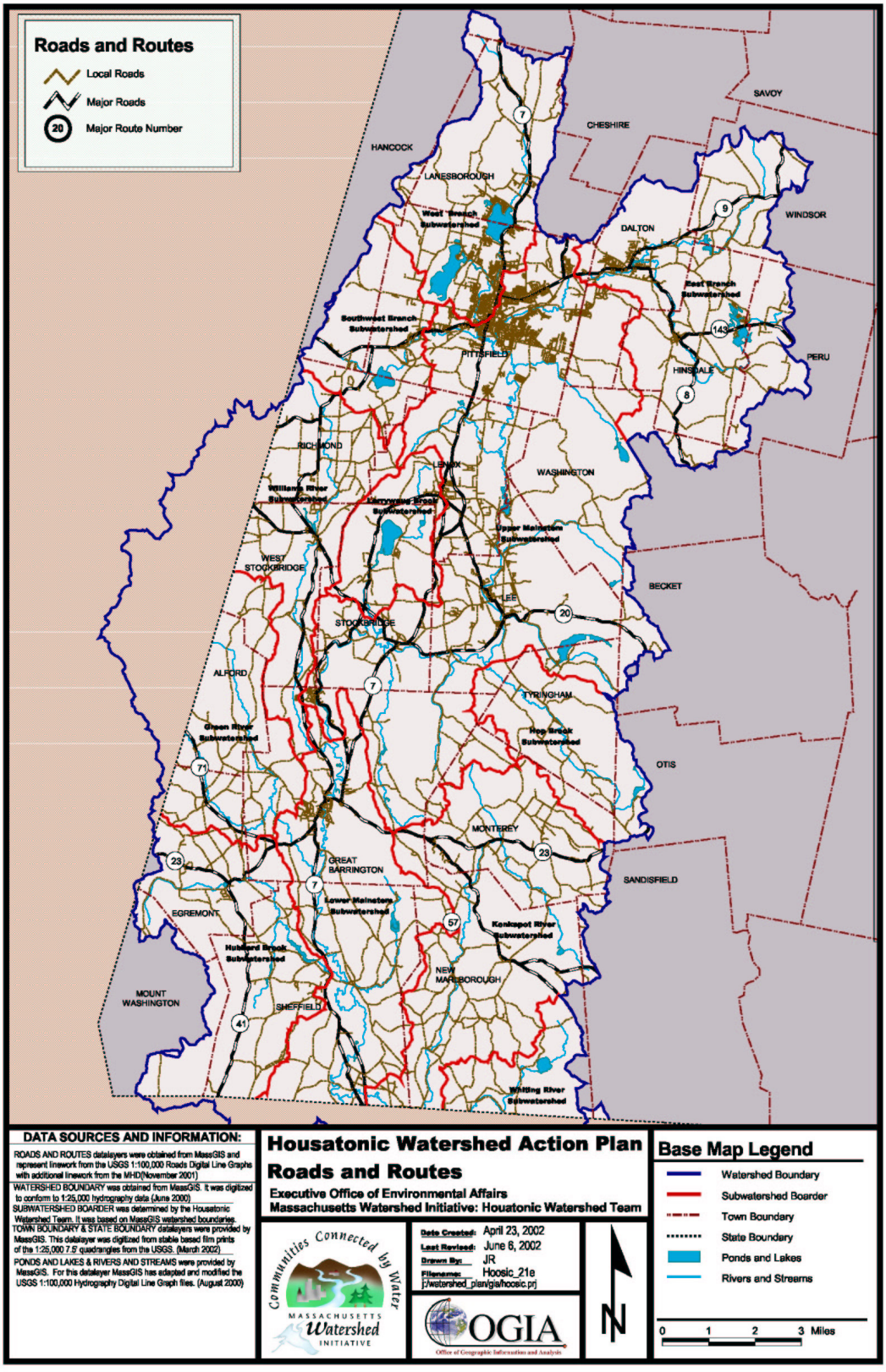
Bruce Philbrick, U.S. Natural Resources Conservation Service

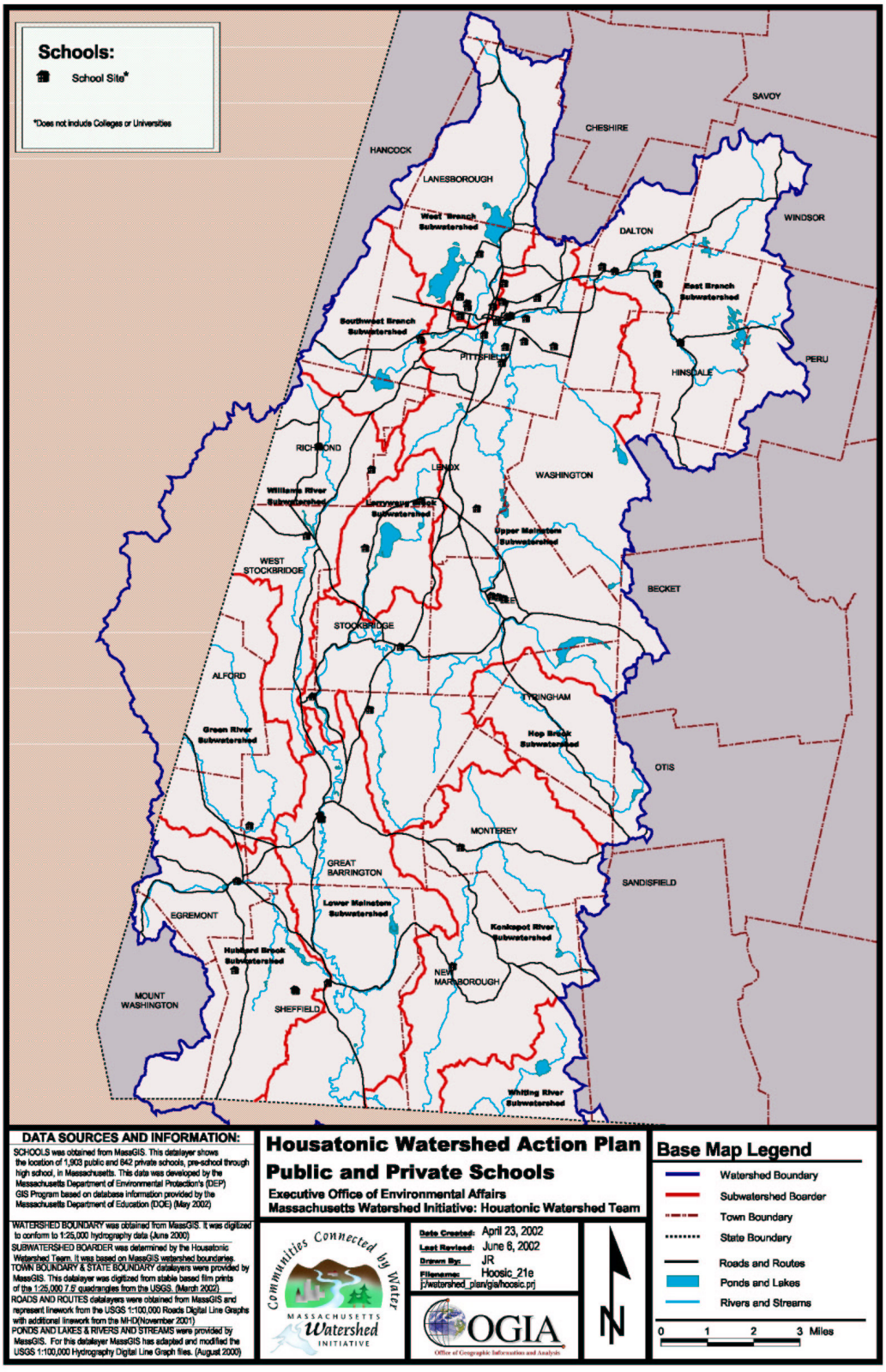
Bob Race, Lakes and Ponds Association of Western Massachusetts (LAPA West) Executive Board

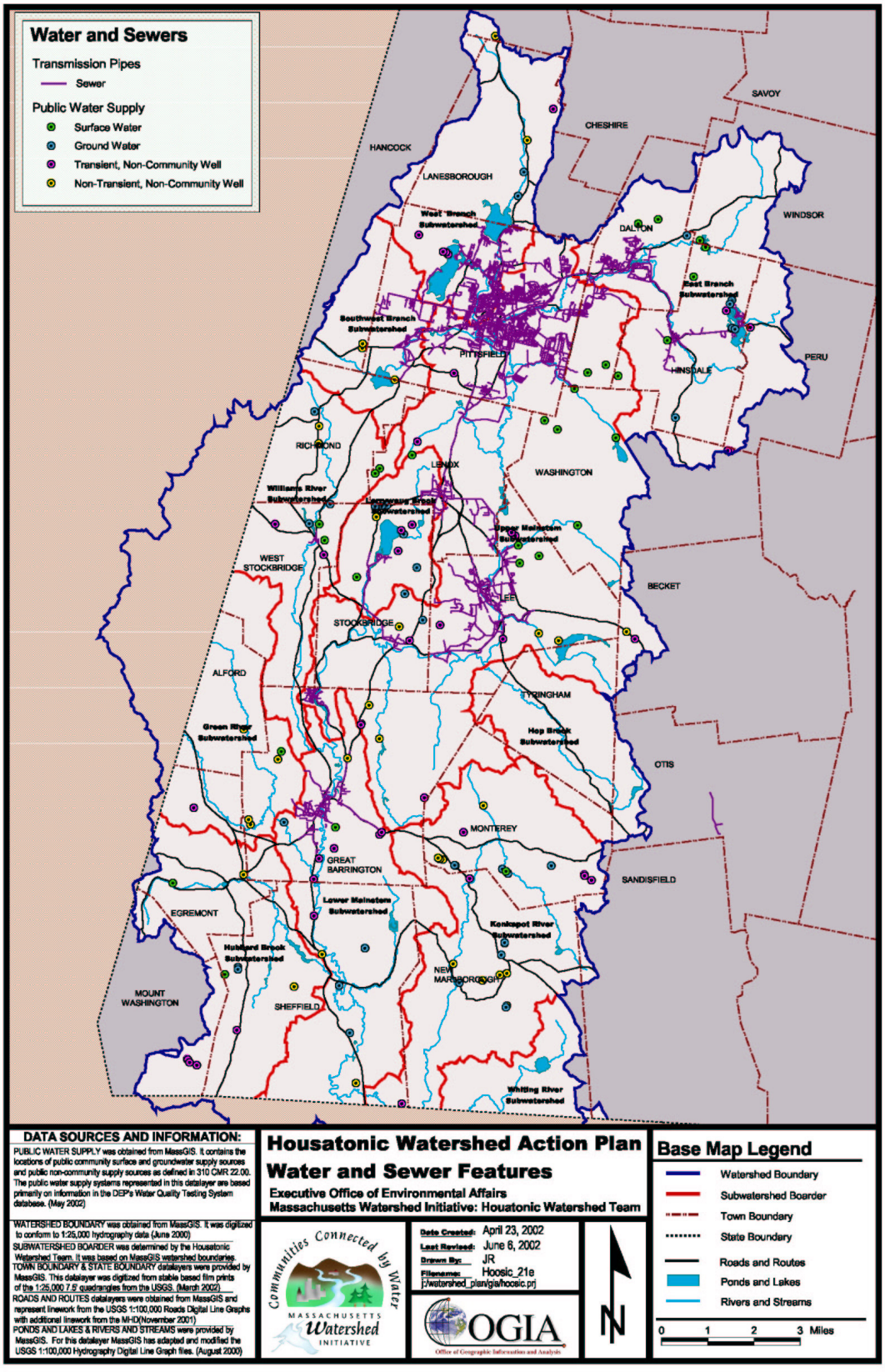
Appendix B – Housatonic Watershed Maps

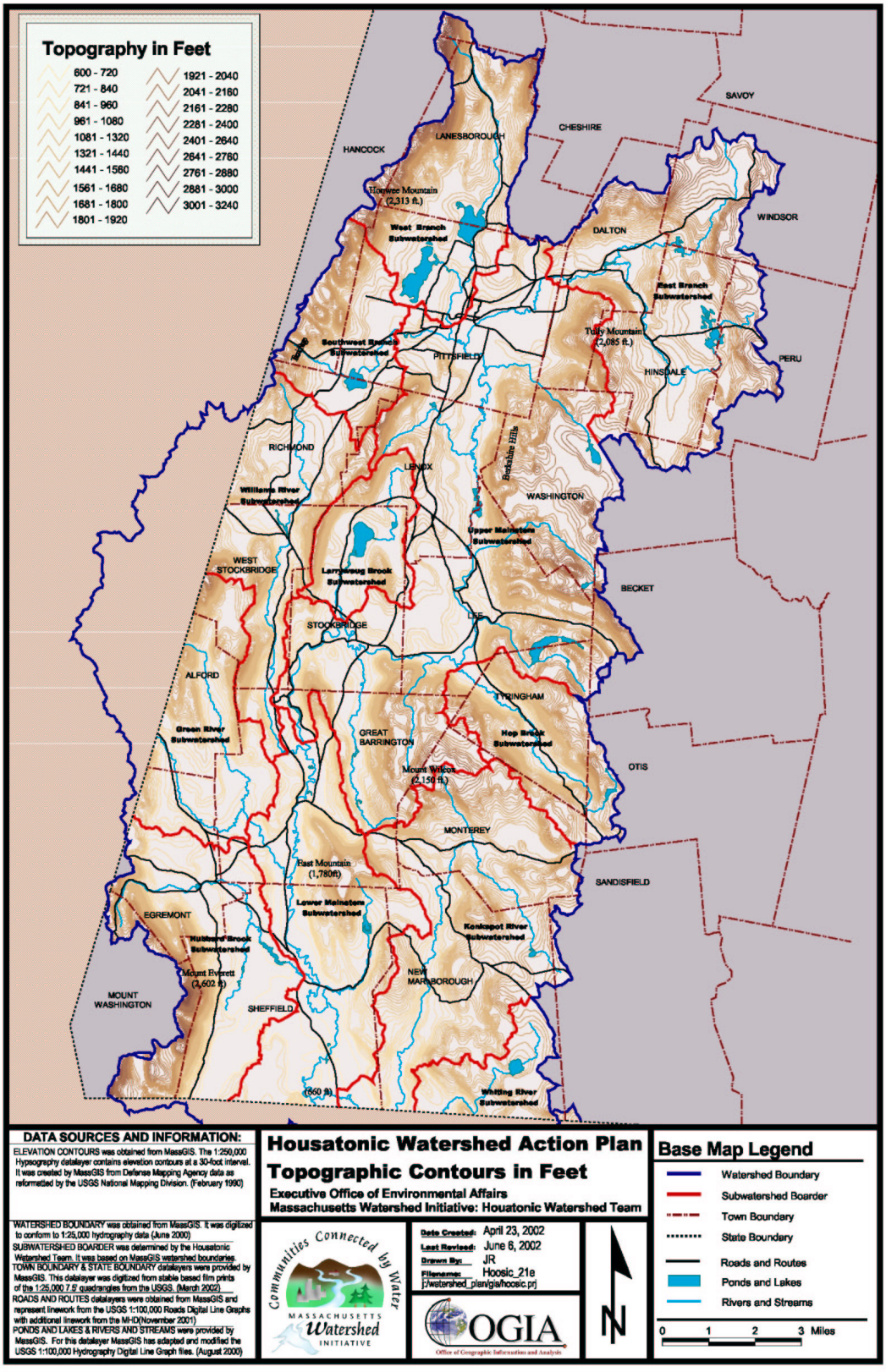


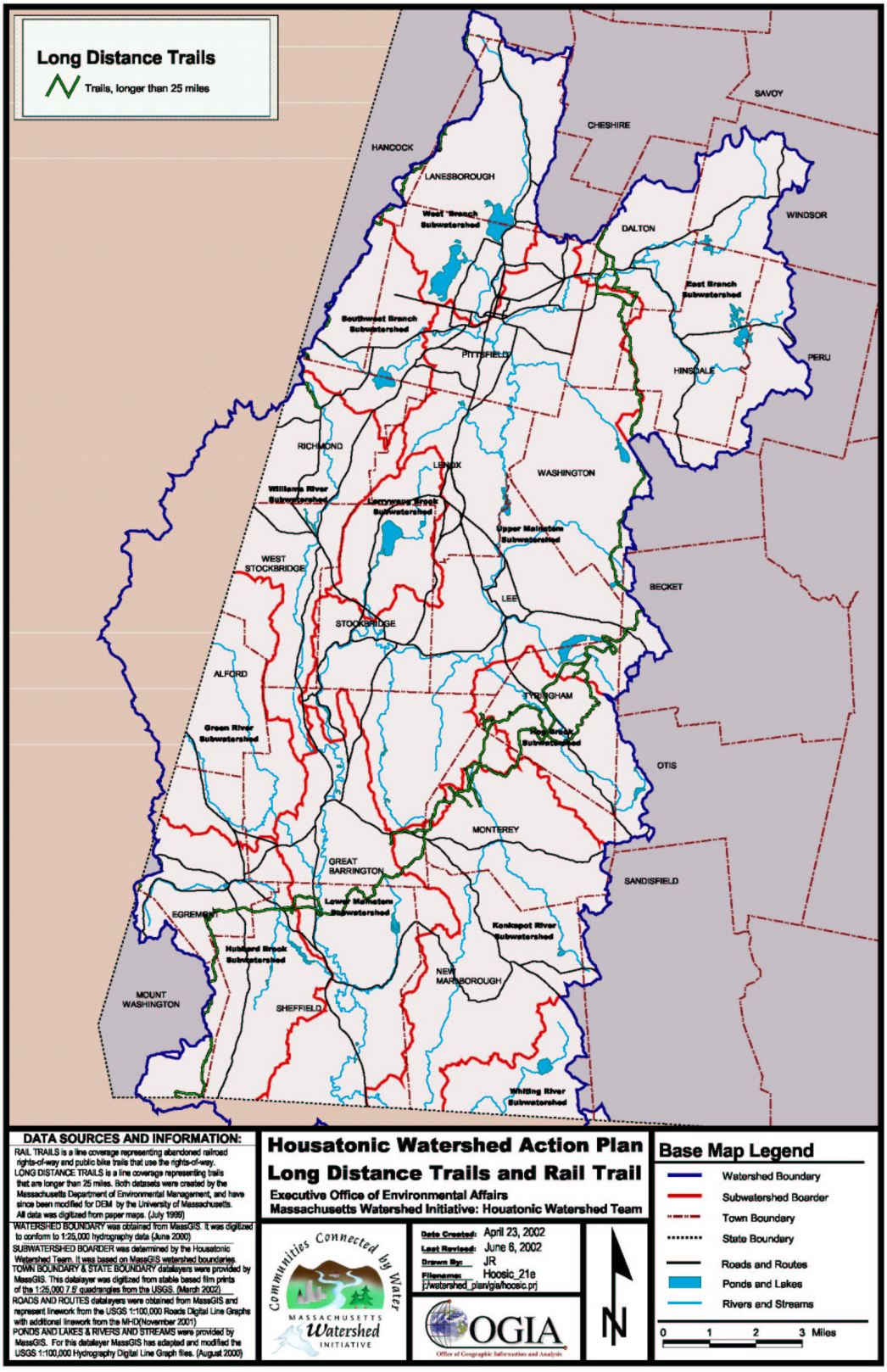

Natural Communties and State-Listed Rare Species Habitat
NHESP 1999-2001 Priority Habitats for State-Protected Rare Species:1
NHESP 1999-2001 Estimated Habitats of Rare Wildlife: 2
1:NOT equivalent to Significant Habitat as designated under Massachusetts Endangered Species Act
2:For Use with the MA Wetlands Protection Act Regulations (310 CMR 10).
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
WINDSOR
DALTON
West Branch Subwatershed
East Branch Subwatershed
Southwest Branch Subwatershed
PERU
HINSDALE
RICHMOND
LENOX
WASHINGTON
Williams River Subwatershed
Upper Mainstem Subwatershed
WEST STOCKBRIDGE
BECKET
LEE
STOCKBRIDGE
ALFORD
TYRINGHAM
Green River Subwatershed
Hop Brook Subwatershed
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
Lower Mainstem Subwatershed
EGREMONT
Konkapot River Subwatershed
Hubbard Brook Subwatershed
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
Whiting River Subwatershed
DATA SOURCES AND INFORMATION:
PRIORITY HABITATS OF RARE SPECIES consists of polygons that represent estimations of important state-listed rare species habitats.
ESTIMATED HABITATS OF RARE WILDLIFE consists of polygons representing estimations of the habitats of state-protected rare wildlife populations that occur in Resource Areas
Both datalayers are based on rare species population records maintained in the Natural Heritage & Endangered Species Program database.
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MHD(November 2001)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
Housatonic Watershed Action Plan
Rare and Endangered Habitat
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: h:\watershed_plan\gis\hoosic.prj
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles

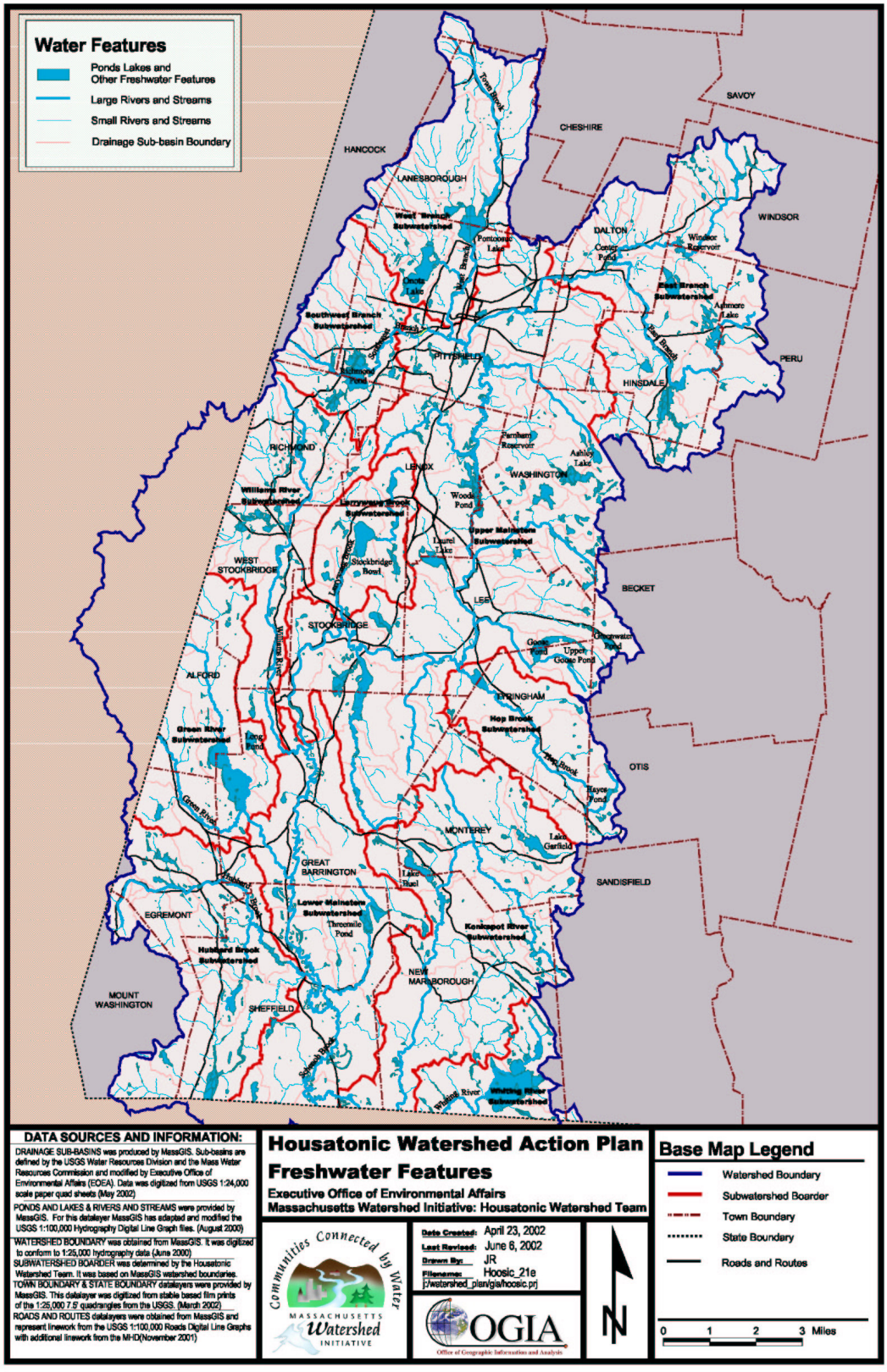

Roads and Routes
Local Roads
Major Roads
Major Route Number
HANCOCK
LANESBOROUGH
CHESHIRE
SAVOY
WINDSOR
DALTON
PITTSFIELD
HINSDALE
PERU
RICHMOND
LENOX
WASHINGTON
WEST STOCKBRIDGE
STOCKBRIDGE
LEE
BECKET
ALFORD
TYRINGHAM
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
EGREMONT
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
DATA SOURCES AND INFORMATION:
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MHD(November 2001)
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
Housatonic Watershed Action Plan
Roads and Routes
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: Hoosic_21e
p/watershed_plan/gis/hoosic.prj
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles

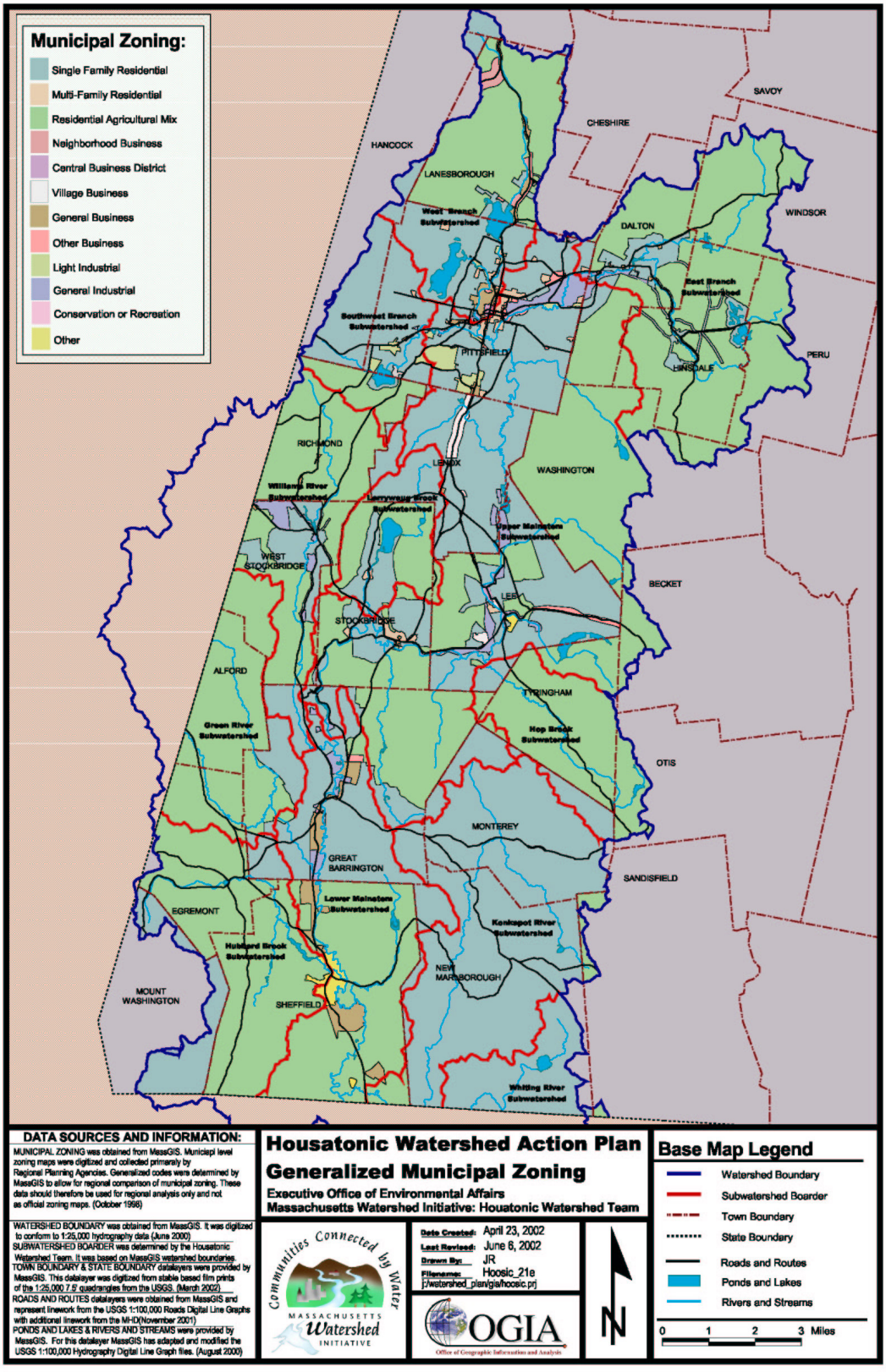

Schools:
School Site*
*Does not include Colleges or Universities
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
WINDSOR
DALTON
West Branch Subwatershed
East Branch Subwatershed
Southwest Branch Subwatershed
PITTSFIELD
HINSDALE
PERU
RICHMOND
LENOX
WASHINGTON
Williams River Subwatershed
Housatonic River Subwatershed
Upper Housatonic Subwatershed
WEST STOCKBRIDGE
BECKET
STOCKBRIDGE
ALFORD
TYRINGHAM
Green River Subwatershed
Hop Brook Subwatershed
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
EGREMONT
Lower Housatonic Subwatershed
Konkapot River Subwatershed
Hubbard Brook Subwatershed
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
Whiting River Subwatershed
DATA SOURCES AND INFORMATION:
SCHOOLS was obtained from MassGIS. This datalayer shows the location of 1,903 public and 842 private schools, pre-school through high school, in Massachusetts. This data was developed by the Massachusetts Department of Environmental Protection's (DEP) GIS Program based on database information provided by the Massachusetts Department of Education (DOE) (May 2002)
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MHD(November 2001)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
Housatonic Watershed Action Plan
Public and Private Schools
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: Hoosic_21e
[:/watershed_plan/gis/hoosic.prj]
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles

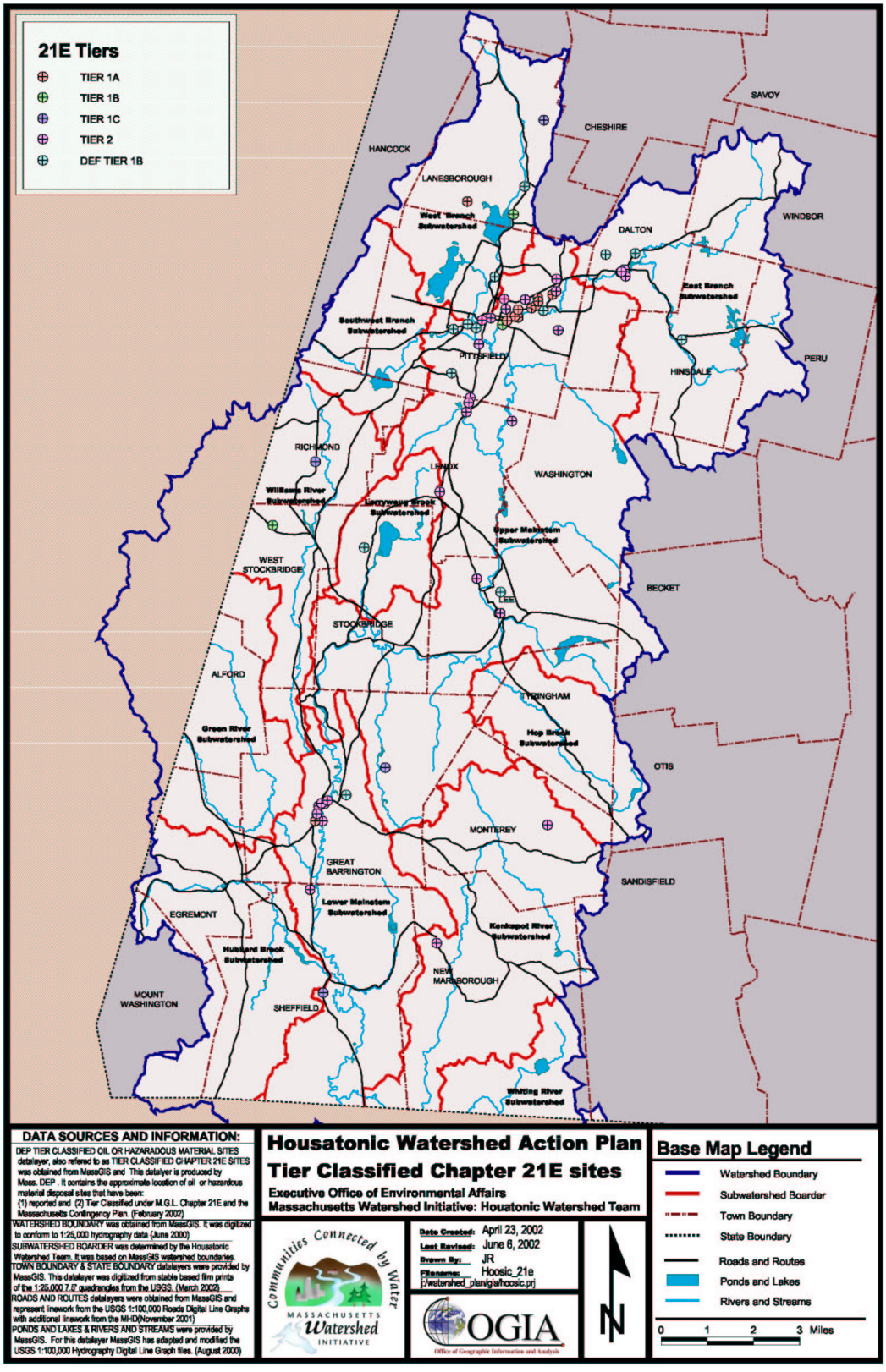

Water and Sewers
Transmission Pipes
Sewer
Public Water Supply
Surface Water
Ground Water
Transient, Non-Community Well
Non-Transient, Non-Community Well
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
WINDSOR
DALTON
PITTSFIELD
HINSDALE
PERU
RICHMOND
LENOX
WASHINGTON
WEST STOCKBRIDGE
BECKET
LEE
STOCKBRIDGE
ALFORD
TYRINGHAM
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
EGREMONT
MOUNT WASHINGTON
SHEFFIELD
NEW MARLBOROUGH
West Branch Subwatershed
East Branch Subwatershed
Southwest Branch Subwatershed
Williams River Subwatershed
Housatonic River Subwatershed
Upper Housatonic Subwatershed
Green River Subwatershed
Hop Brook Subwatershed
Lower Mainstem Subwatershed
Konkapot River Subwatershed
Hubbard Brook Subwatershed
Whiting River Subwatershed
DATA SOURCES AND INFORMATION:
PUBLIC WATER SUPPLY was obtained from MassGIS. It contains the locations of public community surface and groundwater supply sources and public non-community supply sources as defined in 310 CMR 22.00. The public water supply systems represented in this dataleyer are based primarily on information in the DEP's Water Quality Testing System database. (May 2002)
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MHD(November 2001)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
Housatonic Watershed Action Plan
Water and Sewer Features
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 8, 2002
Drawn By: JR
Filename: Hoosic_21e
j:\watershed_plan\gis\hoosic.prj
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles

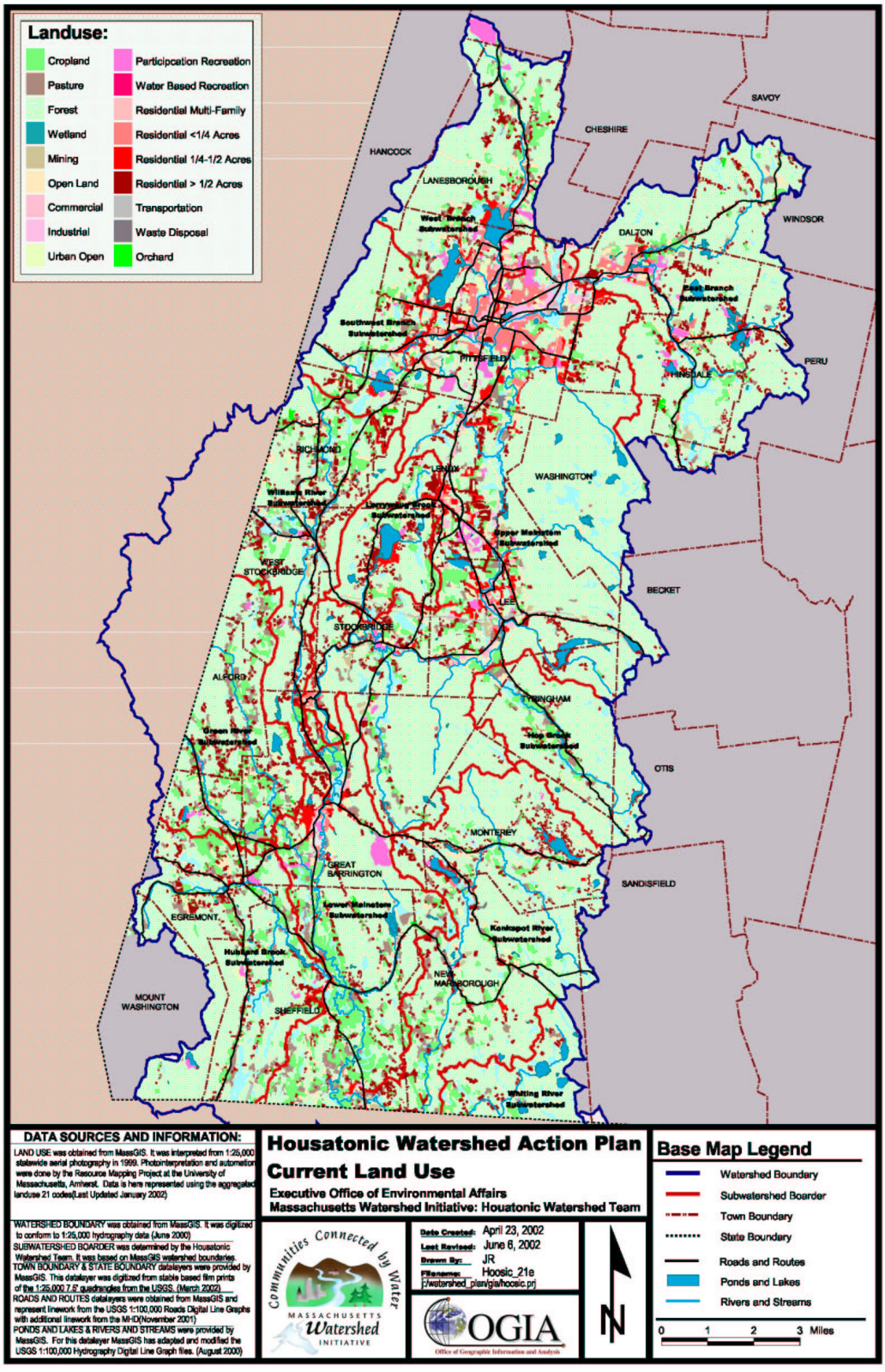

Topography in Feet
600 - 720
721 - 840
841 - 960
961 - 1080
1081 - 1320
1321 - 1440
1441 - 1560
1561 - 1680
1681 - 1800
1801 - 1920
1921 - 2040
2041 - 2160
2161 - 2280
2281 - 2400
2401 - 2640
2641 - 2760
2761 - 2880
2881 - 3000
3001 - 3240
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
Hoosac Mountain (2,313 ft.)
West Branch Subwatershed
DALTON
WINDSOR
East Branch Subwatershed
Tully Mountain (2,085 ft.)
PERU
HINSDALE
Southwest Branch Subwatershed
PITTSFIELD
RICHMOND
LENOX
Berkshire Hills
Williams River Subwatershed
WASHINGTON
Upper Mainstem Subwatershed
WEST STOCKBRIDGE
Larrywaug Brook Subwatershed
BECKET
LEE
STOCKBRIDGE
ALFORD
TYRINGHAM
Green River Subwatershed
GREAT BARRINGTON
Hop Brook Subwatershed
Mount Wilcox (2,150 ft.)
OTIS
MONTEREY
East Mountain (1,780ft)
SANDISFIELD
Lower Mainstem Subwatershed
EGREMONT
Konkapot River Subwatershed
Hubbard Brook Subwatershed
Mount Everett (2,602 ft)
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
(960 ft)
Whiting River Subwatershed
DATA SOURCES AND INFORMATION:
ELEVATION CONTOURS was obtained from MassGIS. The 1:250,000 Hypsography datalayer contains elevation contours at a 30-foot interval. It was created by MassGIS from Defense Mapping Agency data as reformatted by the USGS National Mapping Division. (February 1990)
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MHD(November 2001)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
Housatonic Watershed Action Plan
Topographic Contours in Feet
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: Hoosic_21e
p:\watershed_plan\gis\hoosic.prj
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles

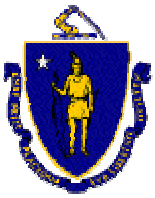

Long Distance Trails
Trails, longer than 25 miles
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
WINDSOR
DALTON
PITTSFIELD
HINSDALE
PERU
RICHMOND
LENOX
WASHINGTON
WEST STOCKBRIDGE
BECKET
LEE
STOCKBRIDGE
ALFORD
TYRINGHAM
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
EGREMONT
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
DATA SOURCES AND INFORMATION:
Housatonic Watershed Action Plan
Long Distance Trails and Rail Trail
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
OGIA
Office of Geographic Information and Analysis
N


Water Features
Ponds Lakes and Other Freshwater Features
Large Rivers and Streams
Small Rivers and Streams
Drainage Sub-basin Boundary
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
WINDSOR
DALTON
PERU
HINSDALE
PITTSFIELD
RICHMOND
LENOX
WASHINGTON
WEST STOCKBRIDGE
STOCKBRIDGE
BECKET
ALFORD
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
EGREMONT
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
DATA SOURCES AND INFORMATION:
DRAINAGE SUB-BASINS was produced by MassGIS. Sub-basins are defined by the USGS Water Resources Division and the Mass Water Resources Commission and modified by Executive Office of Environmental Affairs (EOEA). Data was digitized from USGS 1:24,000 scale paper quad sheets (May 2002)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MHD(November 2001)
Housatonic Watershed Action Plan
Freshwater Features
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Housatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: J:\watershed_plan\gis\hoosic.prj
Hoosic_21e
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
0 1 2 3 Miles


Municipal Zoning:
Single Family Residential
Multi-Family Residential
Residential Agricultural Mix
Neighborhood Business
Central Business District
Village Business
General Business
Other Business
Light Industrial
General Industrial
Conservation or Recreation
Other
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
WINDSOR
DALTON
PITTSFIELD
PERU
LINSDALE
RICHMOND
LENOX
WASHINGTON
WEST STOCKBRIDGE
STOCKBRIDGE
BECKET
LEE
ALFORD
TYRINGHAM
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
EGREMONT
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
DATA SOURCES AND INFORMATION:
Housatonic Watershed Action Plan
Generalized Municipal Zoning
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
OGIA
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: Hoosic_21e
p:\watershed_plan\gis\hoosic.prj


21E Tiers
TIER 1A
TIER 1B
TIER 1C
TIER 2
DEF TIER 1B
SAVOY
CHESHIRE
HANCOCK
LANESBOROUGH
West Branch Subwatershed
DALTON
WINDSOR
East Branch Subwatershed
Southwest Branch Subwatershed
PITTSFIELD
HINSDALE
PERU
RICHMOND
LENOX
WASHINGTON
Williams River Subwatershed
Housatonic River Subwatershed
Upper Housatonic Subwatershed
WEST STOCKBRIDGE
BECKET
LEE
STOCKBRIDGE
ALFORD
TYRINGHAM
Green River Subwatershed
Hop Brook Subwatershed
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
Lower Mainstem Subwatershed
EGREMONT
Konkapot River Subwatershed
Hubbard Brook Subwatershed
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
Whiting River Subwatershed
DATA SOURCES AND INFORMATION:
DEP TIER CLASSIFIED OIL OR HAZARDOUS MATERIAL SITES datalayer, also refered to as TIER CLASSIFIED CHAPTER 21E SITES was obtained from MassGIS and This datalyer is produced by Mass. DEP . It contains the approximate location of oil or hazardous material disposal sites that have been: (1) reported and (2) Tier Classified under M.G.L. Chapter 21E and the Massachusetts Contingency Plan. (February 2002)
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MI-DI(November 2001)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
Housatonic Watershed Action Plan
Tier Classified Chapter 21E sites
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: Hoosic_21e
p:\watershed_plan\gia\hoosic.prj
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles


Landuse:
Cropland
Pasture
Forest
Wetland
Mining
Open Land
Commercial
Industrial
Urban Open
Participation Recreation
Water Based Recreation
Residential Multi-Family
Residential <1/4 Acres
Residential 1/4-1/2 Acres
Residential > 1/2 Acres
Transportation
Waste Disposal
Orchard
HANCOCK
CHESHIRE
SAVOY
LANESBOROUGH
WINDSOR
DALTON
PERU
HINSDALE
PITTSFIELD
RICHMOND
LENOX
WASHINGTON
WEST STOCKBRIDGE
STOCKBRIDGE
LEE
BECKET
ALFORD
TYRINGHAM
OTIS
MONTEREY
GREAT BARRINGTON
SANDISFIELD
EGREMONT
NEW MARLBOROUGH
MOUNT WASHINGTON
SHEFFIELD
DATA SOURCES AND INFORMATION:
LAND USE was obtained from MassGIS. It was interpreted from 1:25,000 statewide aerial photography in 1999. Photointerpretation and automation were done by the Resource Mapping Project at the University of Massachusetts, Amherst. Data is here represented using the aggregated landuse 21 codes(Last Updated January 2002)
WATERSHED BOUNDARY was obtained from MassGIS. It was digitized to conform to 1:25,000 hydrography data (June 2000)
SUBWATERSHED BOARDER was determined by the Housatonic Watershed Team. It was based on MassGIS watershed boundaries.
TOWN BOUNDARY & STATE BOUNDARY datalayers were provided by MassGIS. This datalayer was digitized from stable based film prints of the 1:25,000 7.5' quadrangles from the USGS. (March 2002)
ROADS AND ROUTES datalayers were obtained from MassGIS and represent linework from the USGS 1:100,000 Roads Digital Line Graphs with additional linework from the MI-D(November 2001)
PONDS AND LAKES & RIVERS AND STREAMS were provided by MassGIS. For this datalayer MassGIS has adapted and modified the USGS 1:100,000 Hydrography Digital Line Graph files. (August 2000)
Housatonic Watershed Action Plan
Current Land Use
Executive Office of Environmental Affairs
Massachusetts Watershed Initiative: Houatonic Watershed Team
Communities Connected by Water
MASSACHUSETTS Watershed INITIATIVE
Date Created: April 23, 2002
Last Revised: June 6, 2002
Drawn By: JR
Filename: Hoosic_21e
j:\watershed_plan\gis\hoosic.prj
OGIA
Office of Geographic Information and Analysis
N
Base Map Legend
Watershed Boundary
Subwatershed Boarder
Town Boundary
State Boundary
Roads and Routes
Ponds and Lakes
Rivers and Streams
0 1 2 3 Miles



Mitt Romney
Governor

Kerry Healey
Lt. Governor

Ellen Roy Herzfelder
Secretary

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